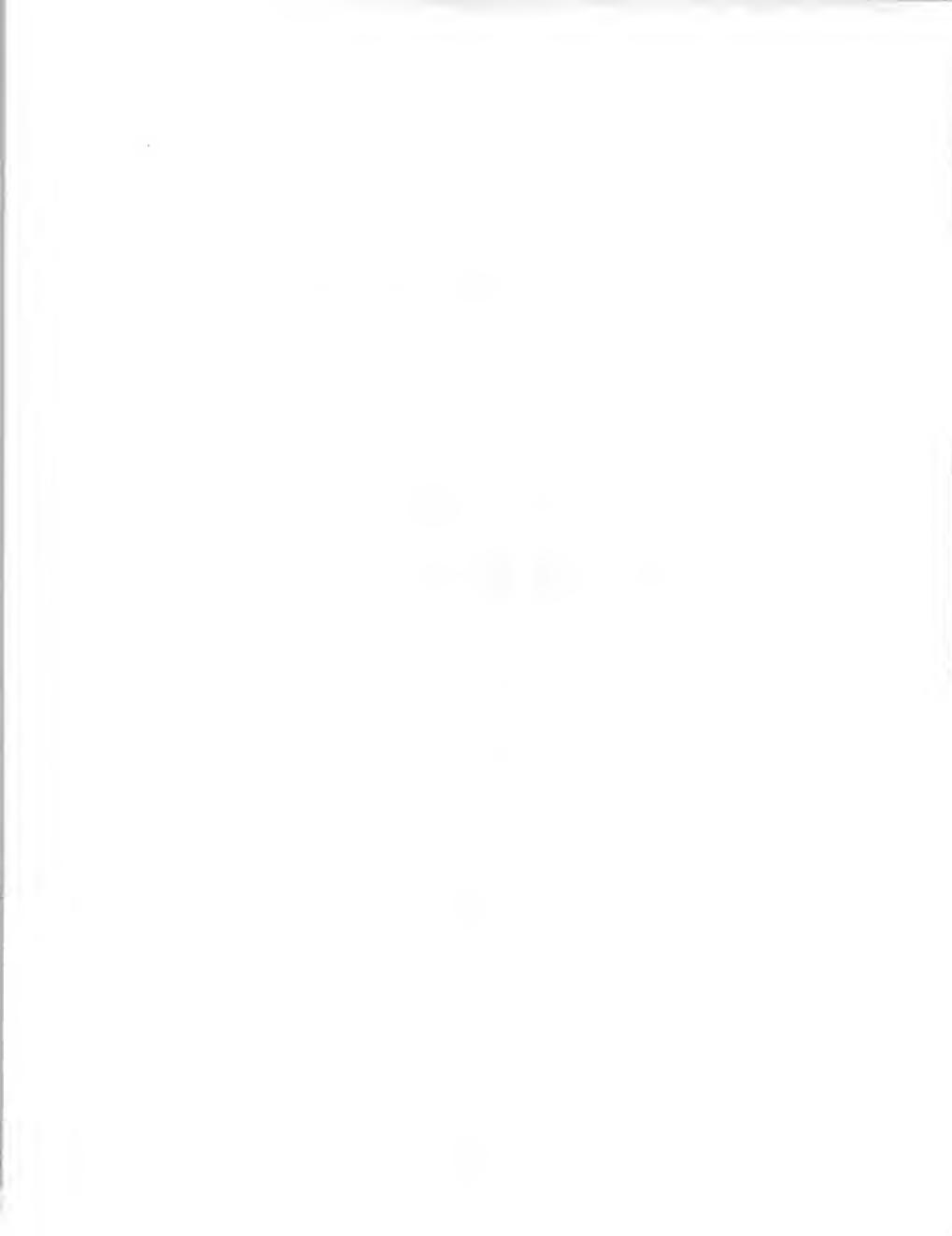


ADVANCED OFFICE SYSTEMS

	Now	Planned
Document Composition Systems	17%	42%
Electronic Filing	8%	42%



ADVANCED OFFICE SYSTEMS

	Now	Planned
Document Composition Systems	17%	42%
Electronic Filing	8%	42%

INPUT®

**Data Base Management
Key to Corporate-Wide Systems**

**Peter A. Cunningham
President
INPUT**

1943 Landings Drive Mountain View, CA 94043

Telephone: (415) 960-3990 Telex: 171407

INPUT®

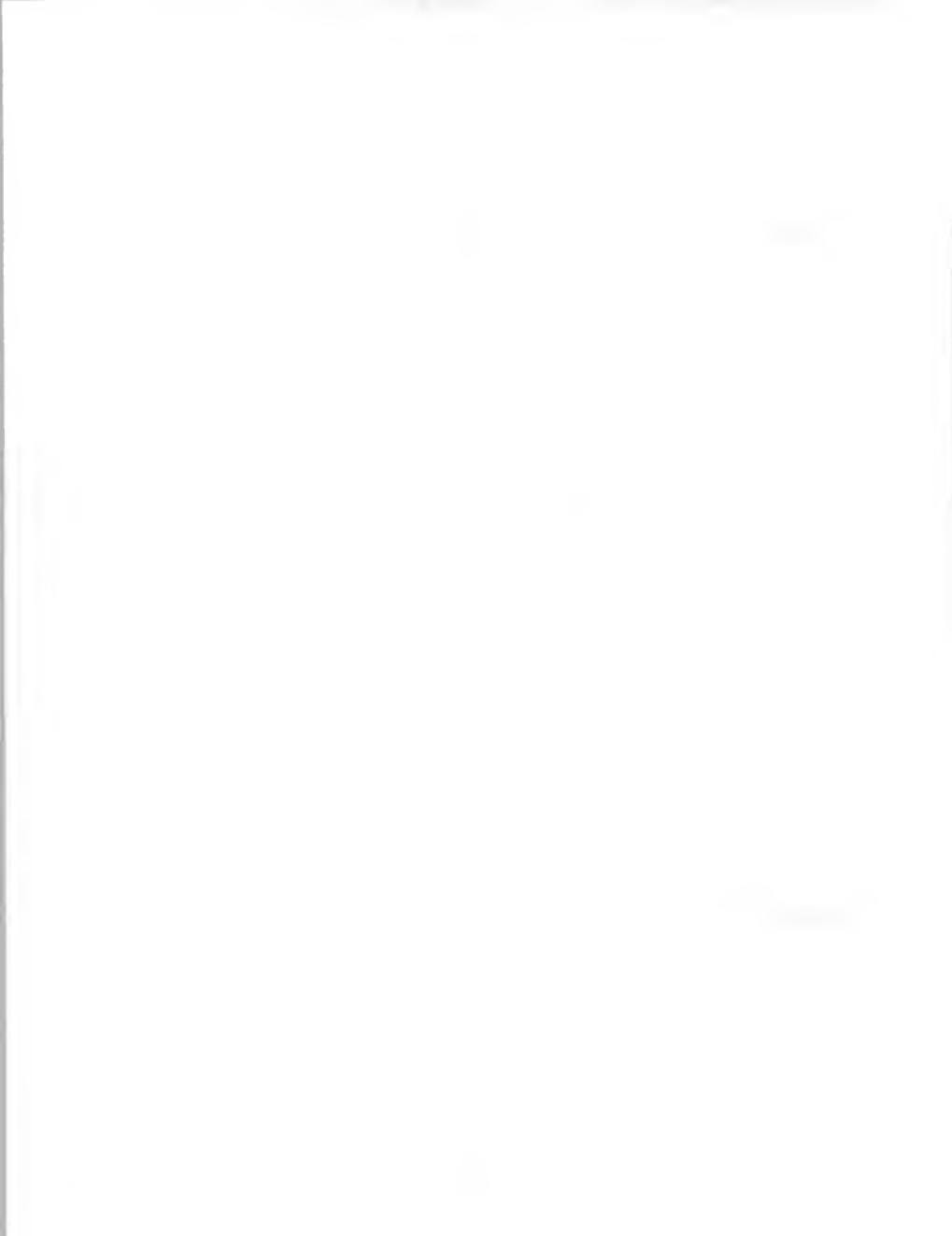
Data Base Management
Key to Corporate-Wide Systems

Peter A. Cunningham
President
INPUT



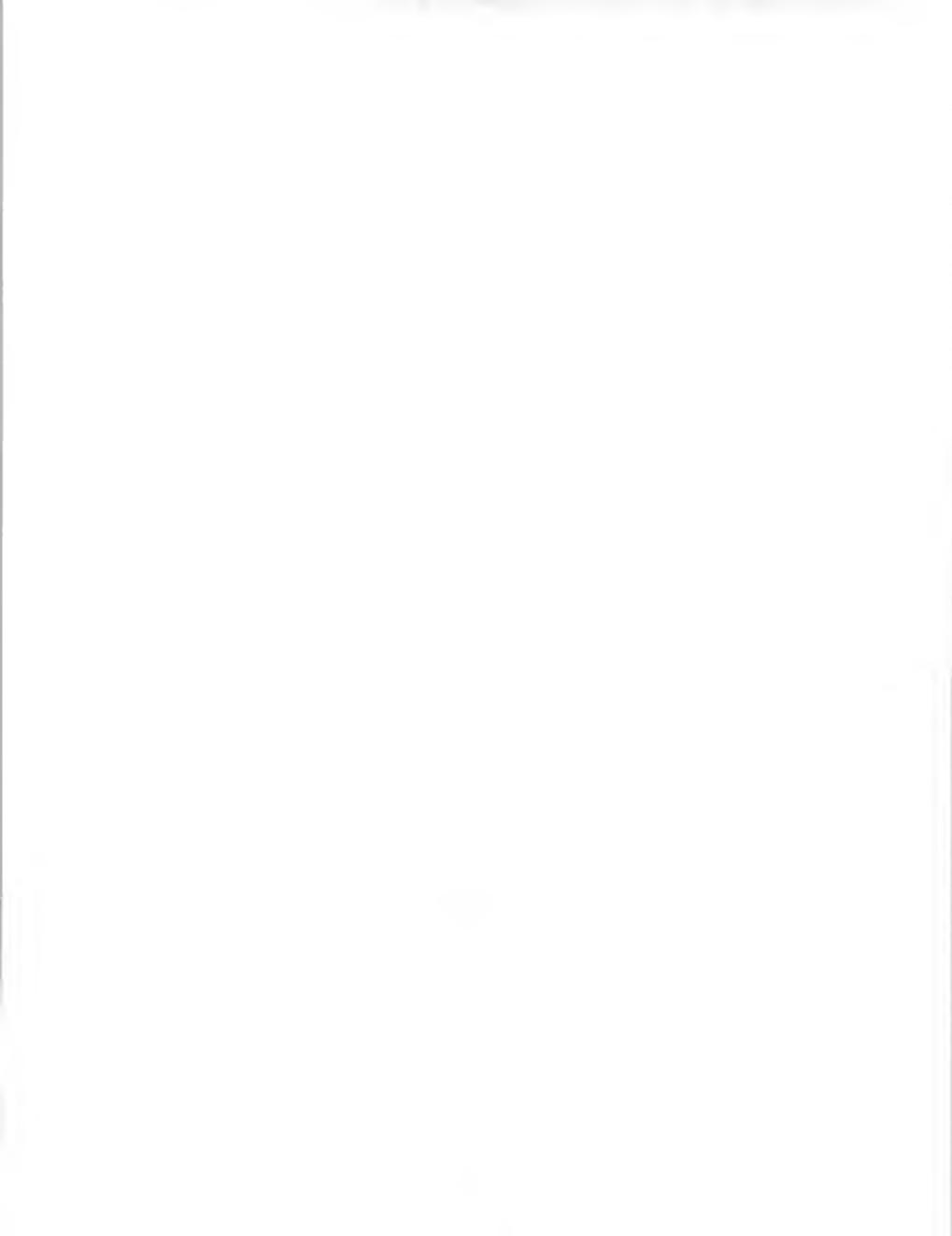
CONTENTS

- **Introduction**
- **Information Management**
- **Changing Architectures**
- **Vendor Roles**
- **Conclusion**



INPUT®

INTRODUCTION



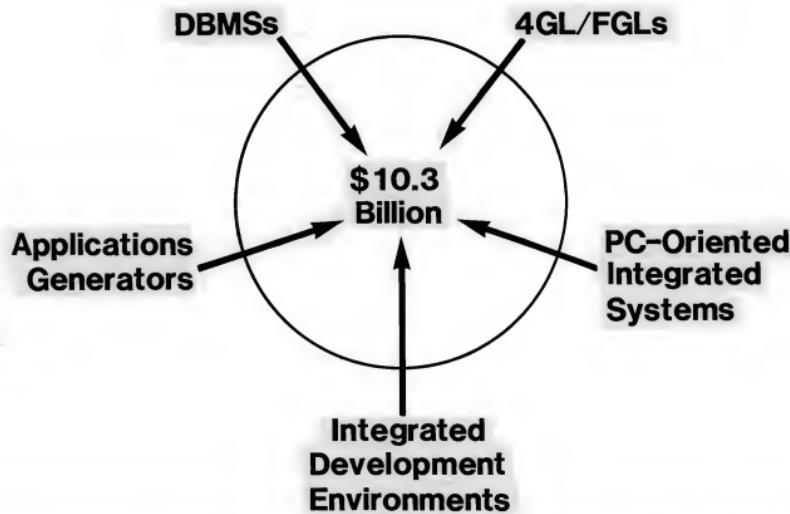
DATA BASE MANAGEMENT

- **Philosophy – Organization**
- **Tools – DBMS**



APPLICATIONS DEVELOPMENT MARKET

1990



U.S. DBMS MARKET (\$ Billions)

	1985	1990
IBM	\$0.6	\$3.6
Non-IBM	\$0.4	\$2.8
Total	\$1.0	\$6.4



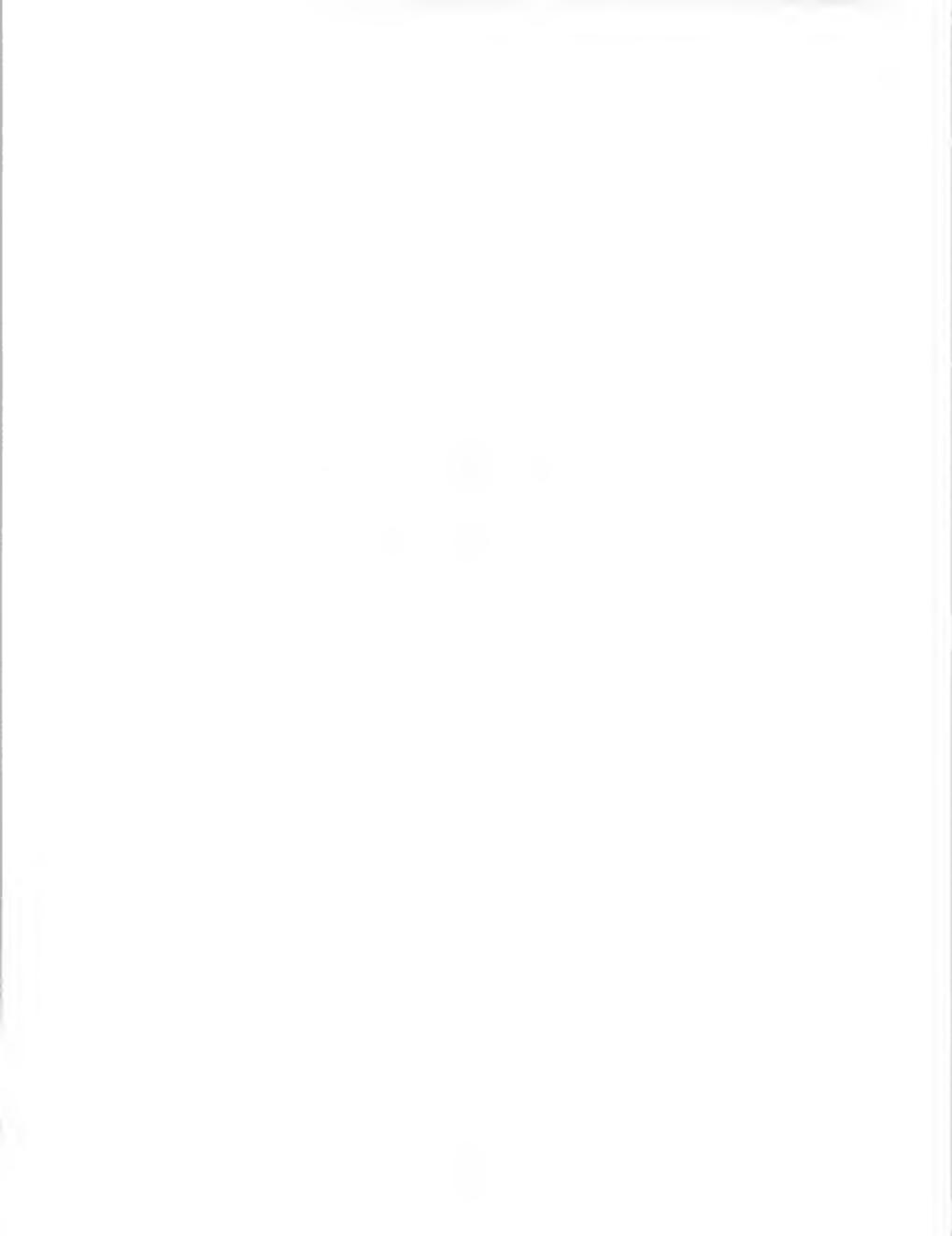
**U.S. DBMS MARKET
(\$ Billions)**

	1984	1990
Mainframe/Mini	\$0.75	\$5.2
Micro	\$0.25	\$1.2
Total	\$1.0	\$6.4



INTEGRATED DBMS/APPLICATIONS

U.S. Market	\$ Billions
1985	\$0.2
1990	\$5.0



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INFORMATION MANAGEMENT



DATA ADMINISTRATION

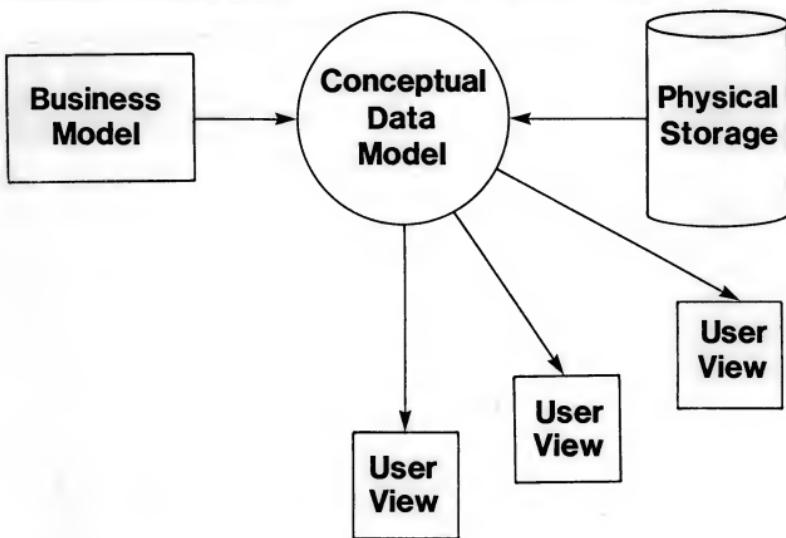


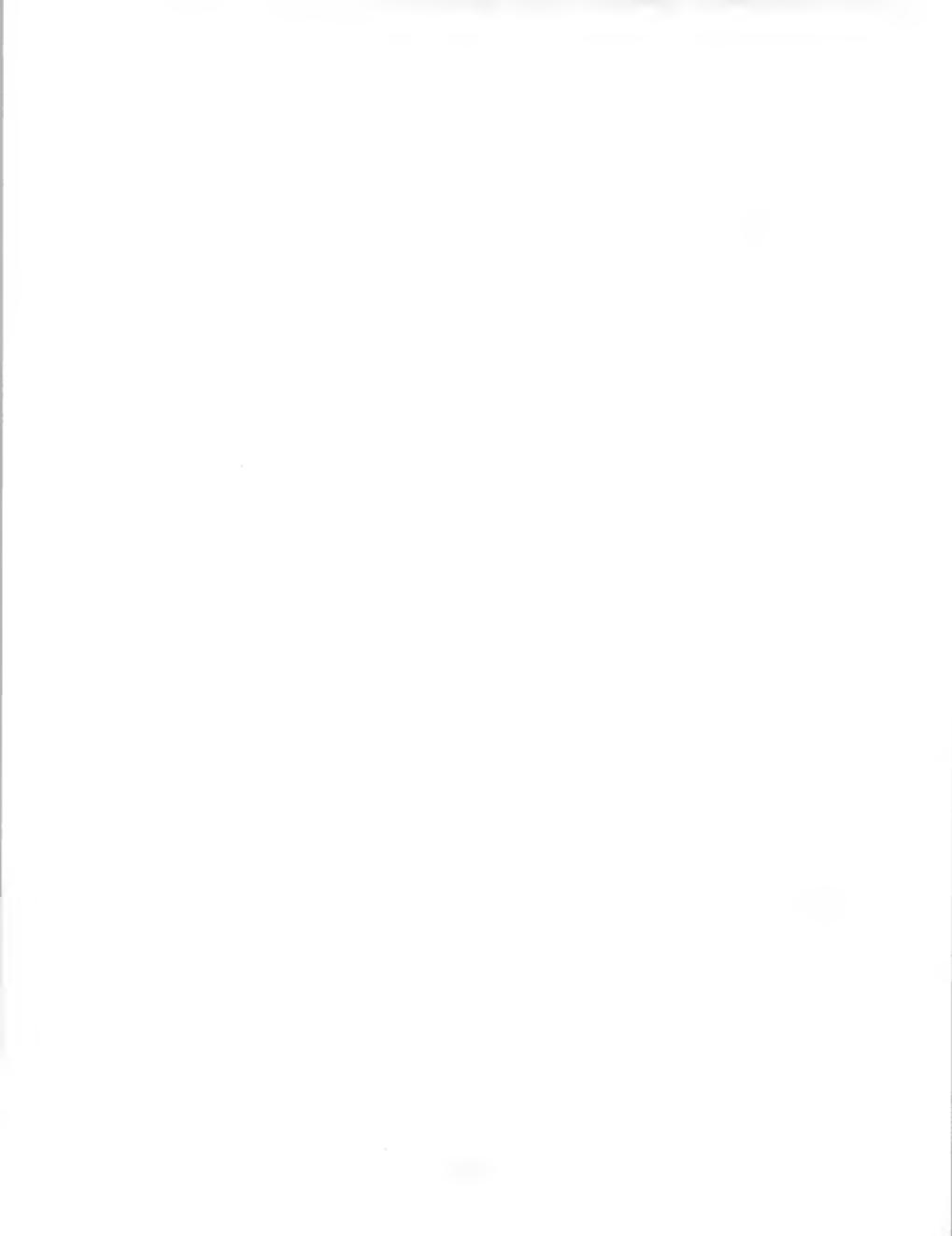
INFORMATION MANAGEMENT

- Planning**
- Organizing**
- Communicating**
- Control**



**THE CONCEPTUAL DATA MODEL IS THE
TECHNOLOGICAL KEY TO DATA ADMINISTRATION**





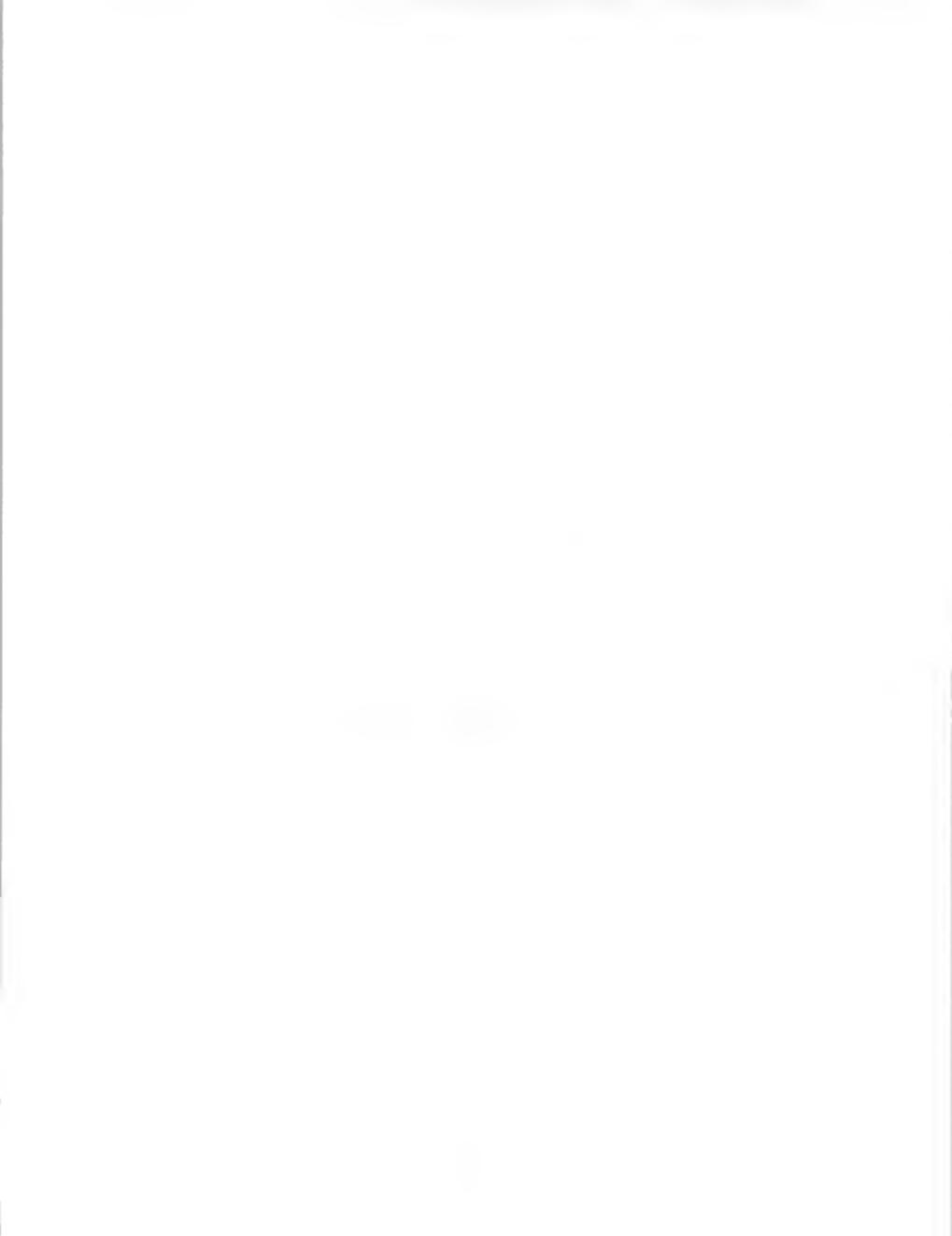
DA BENEFITS

- **Better Use of New Tools**
 - FGLs
 - DSS
 - Redundancy Reduced



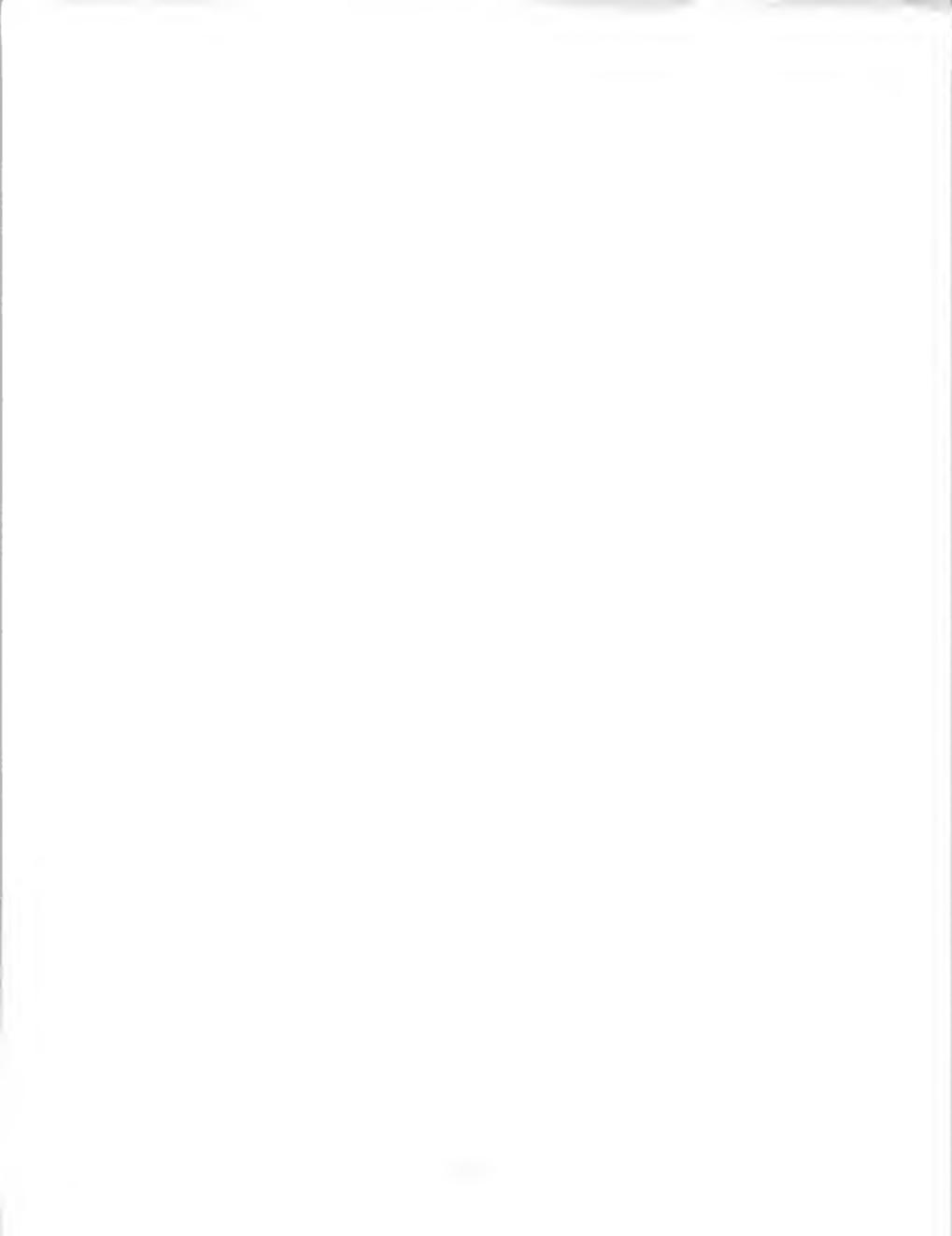
DA BENEFITS

- **Applications Development**
 - Faster
 - Higher Quality
 - Packages Facilitated
- **Demonstrated Benefits**



PROBLEMS WITH DA

- **Business Model**
 - **Very Expensive**
 - **Time Consuming**
 - **Questionable Validity**
 - **Fragile**
- **Centralized – Counter Trend**



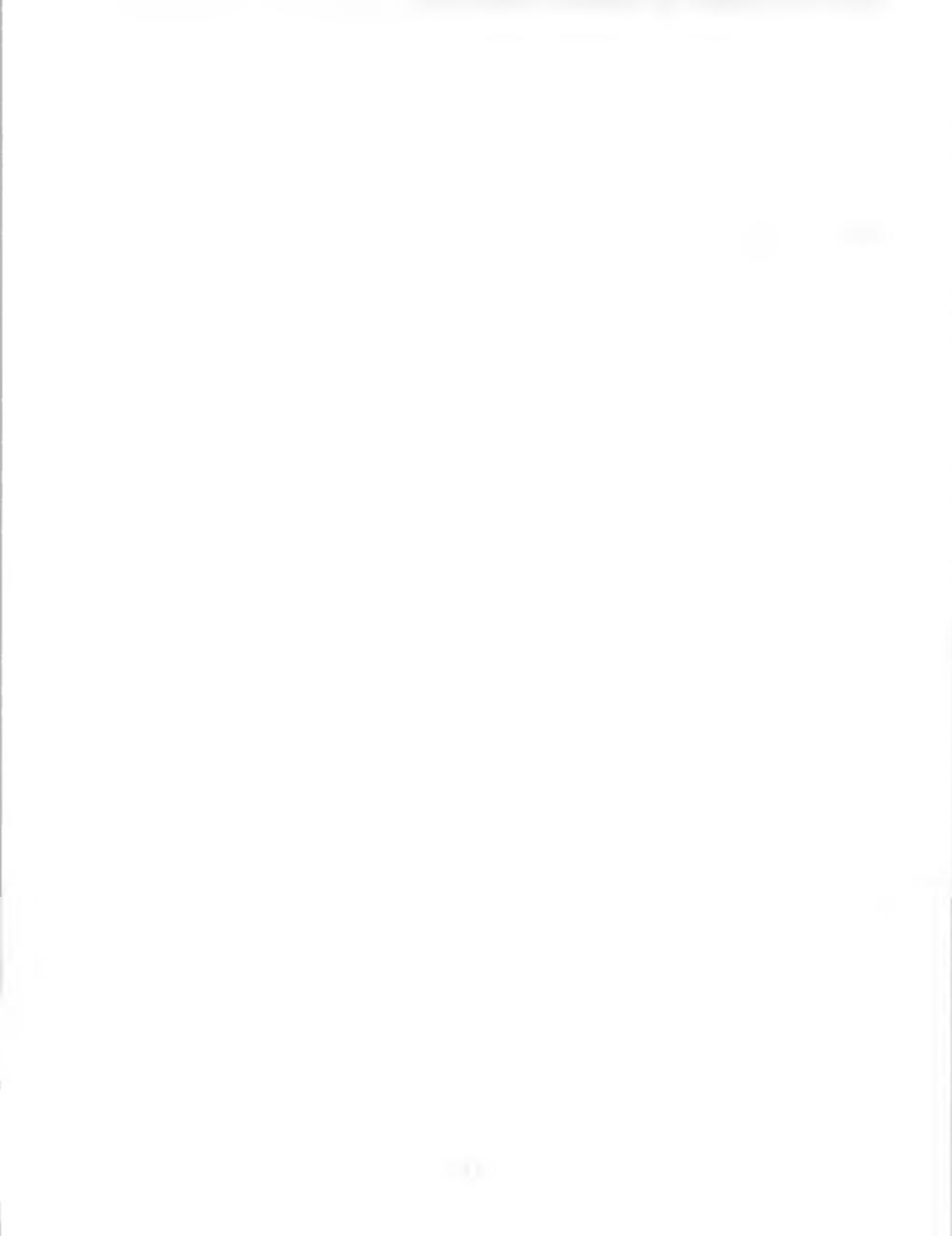
OWNERSHIP

- Who Owns Data?
 - Creator
 - User
 - DBA
 - Corporation



OWNERSHIP

- **File-Oriented, User**
- **DBMS-Oriented**
 - Owner?
 - Administrator, DBA



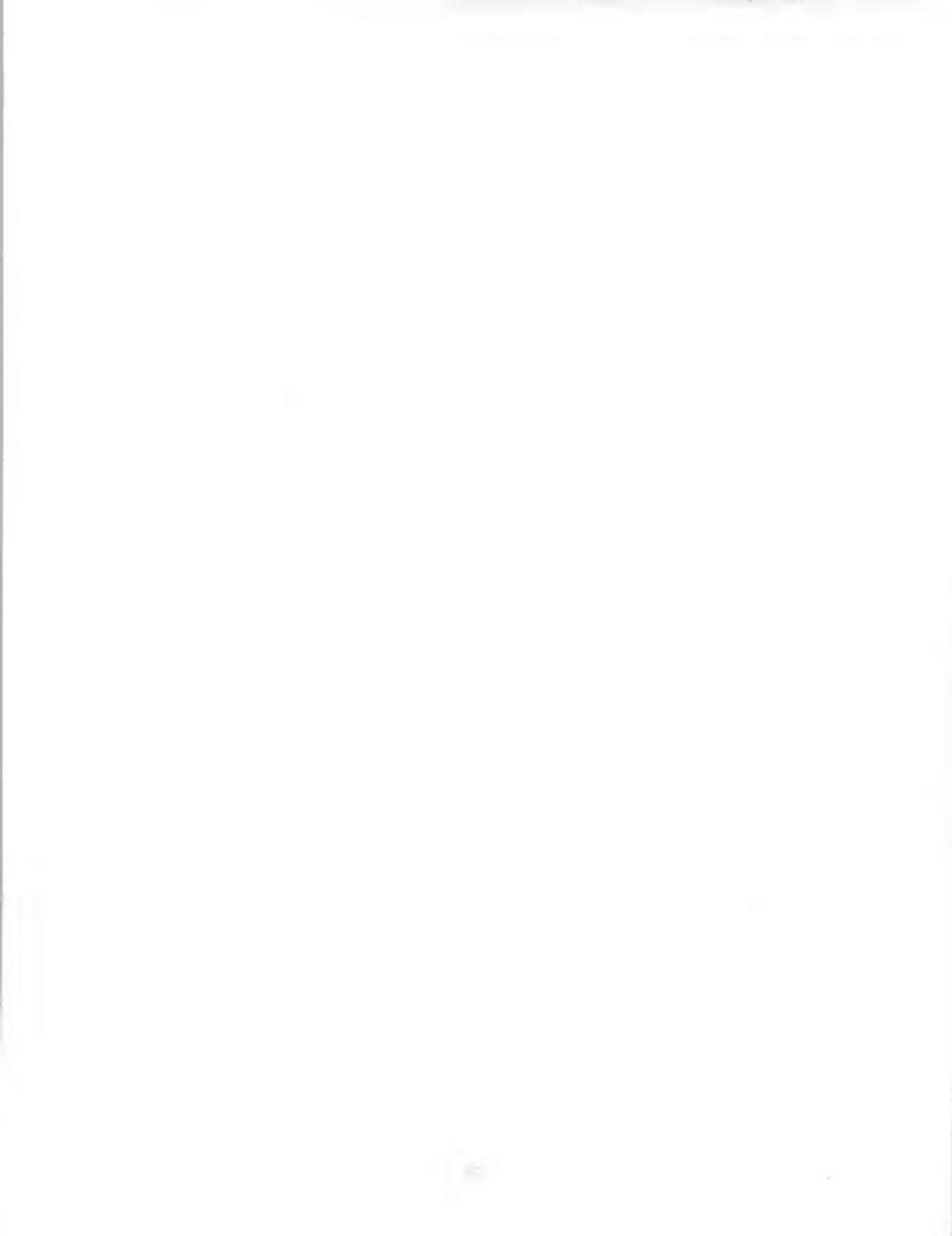
DBMS IMPLEMENTATION

- **Training**
- **Conversion**
- **Migration**



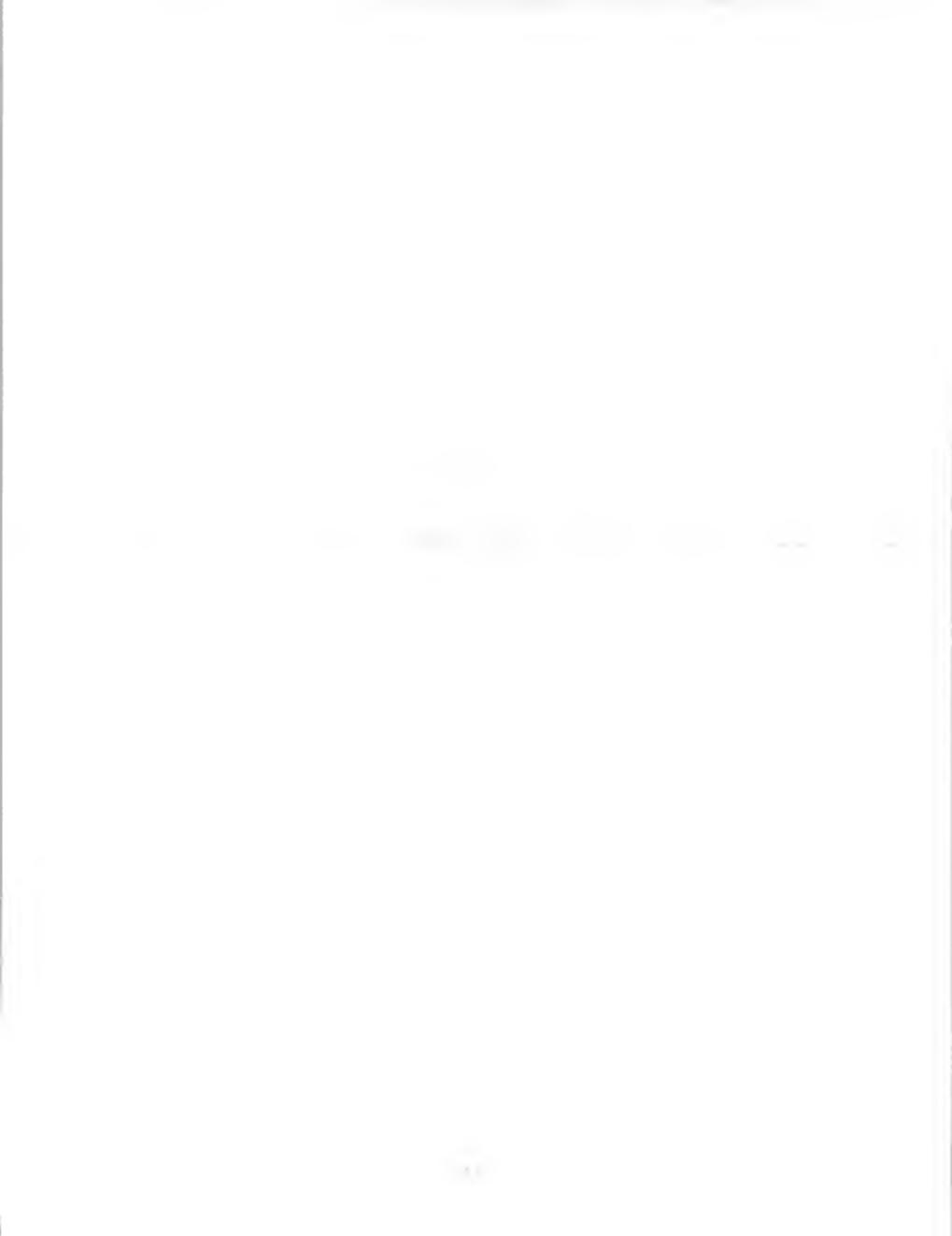
DBMS IMPLEMENTATION

- **Conversion**
 - **Old Applications = Old/No DBMS**
 - **New Applications = New DBMS**
 - **Applications Interface Needed**



DBMS IMPLEMENTATION

- **Migration Software**
 - Reformats Data
 - Converts “Calls”
 - Takes Time



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CHANGING ARCHITECTURES



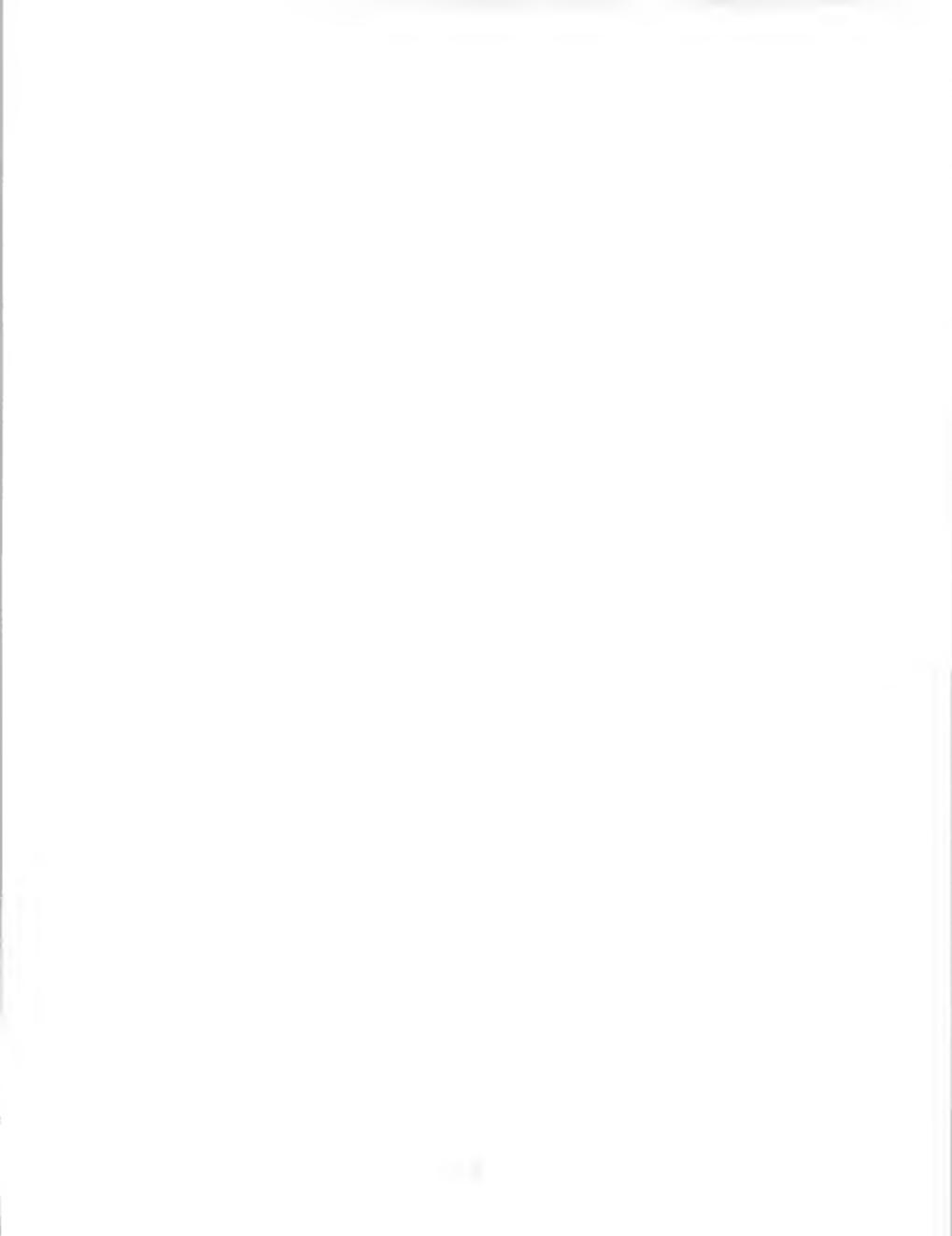
DBMS TECHNOLOGY TRENDS

- **Distributed Data Bases**
- **Data Dictionaries for Information Management**
- **Fault-Tolerant, Fail-Safe Architecture**



DBMS TECHNOLOGY TRENDS

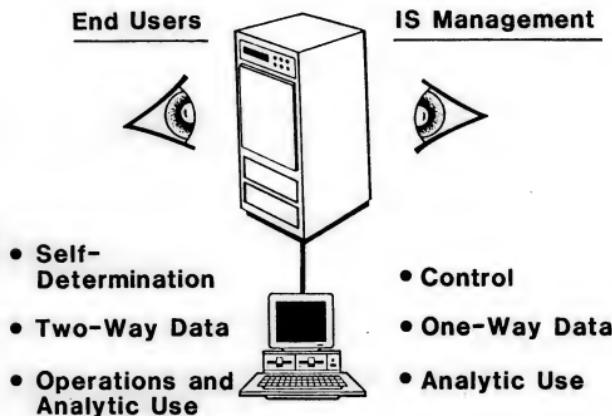
- **Relational Structures**
- **Integration with the Office**
- **Use of New Technologies**
 - **Optical Memory**
 - **Optical Input**
 - **Data Base Assists/Machines**

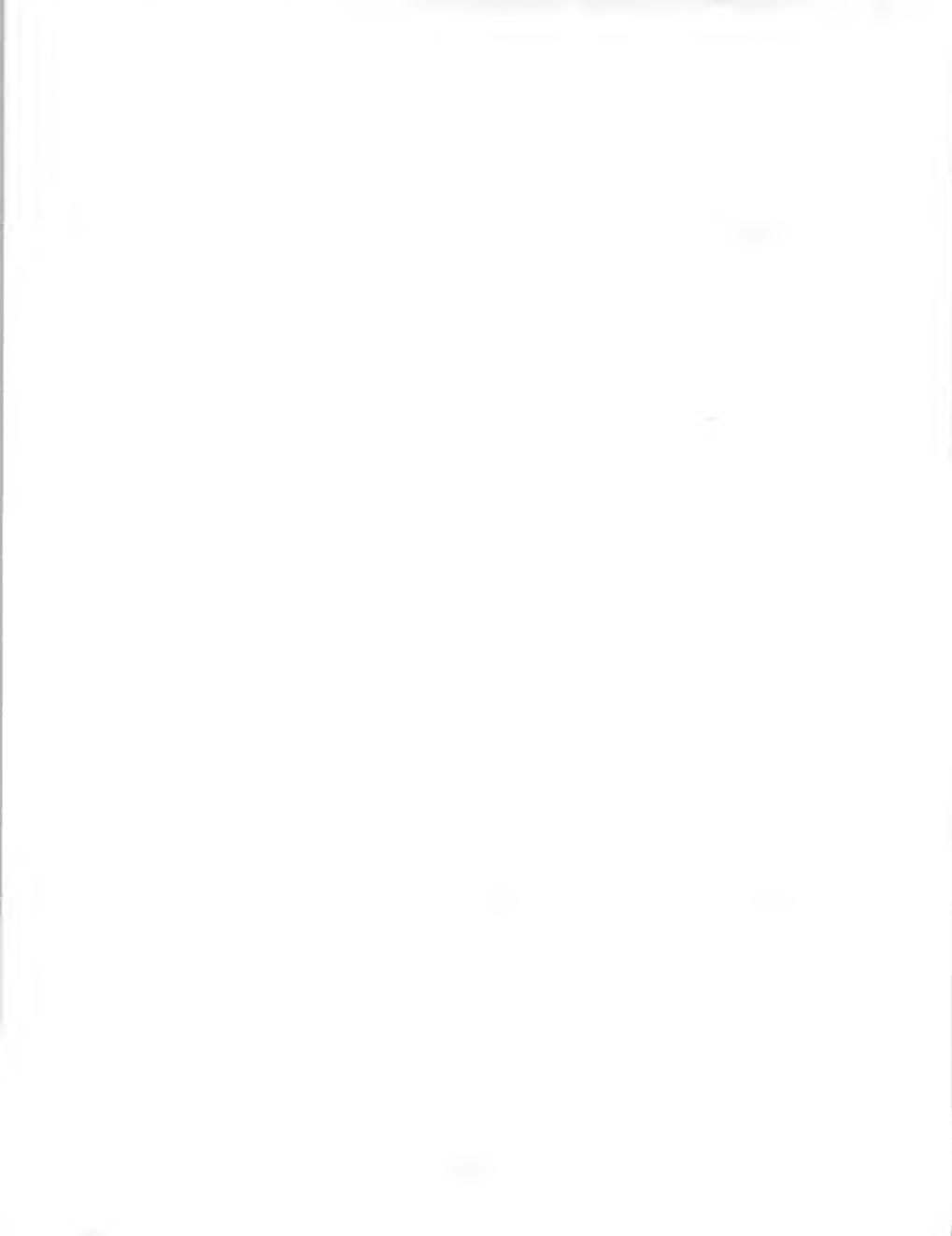


MICRO-MARKET GROWTH

- **Driven by Micro-Mainframe**
 - Replacing Terminals
 - End-User Applications
 - “Virtual” Disk

END-USER AND I.S. VIEW MICRO-MAINFRAME DIFFERENTLY





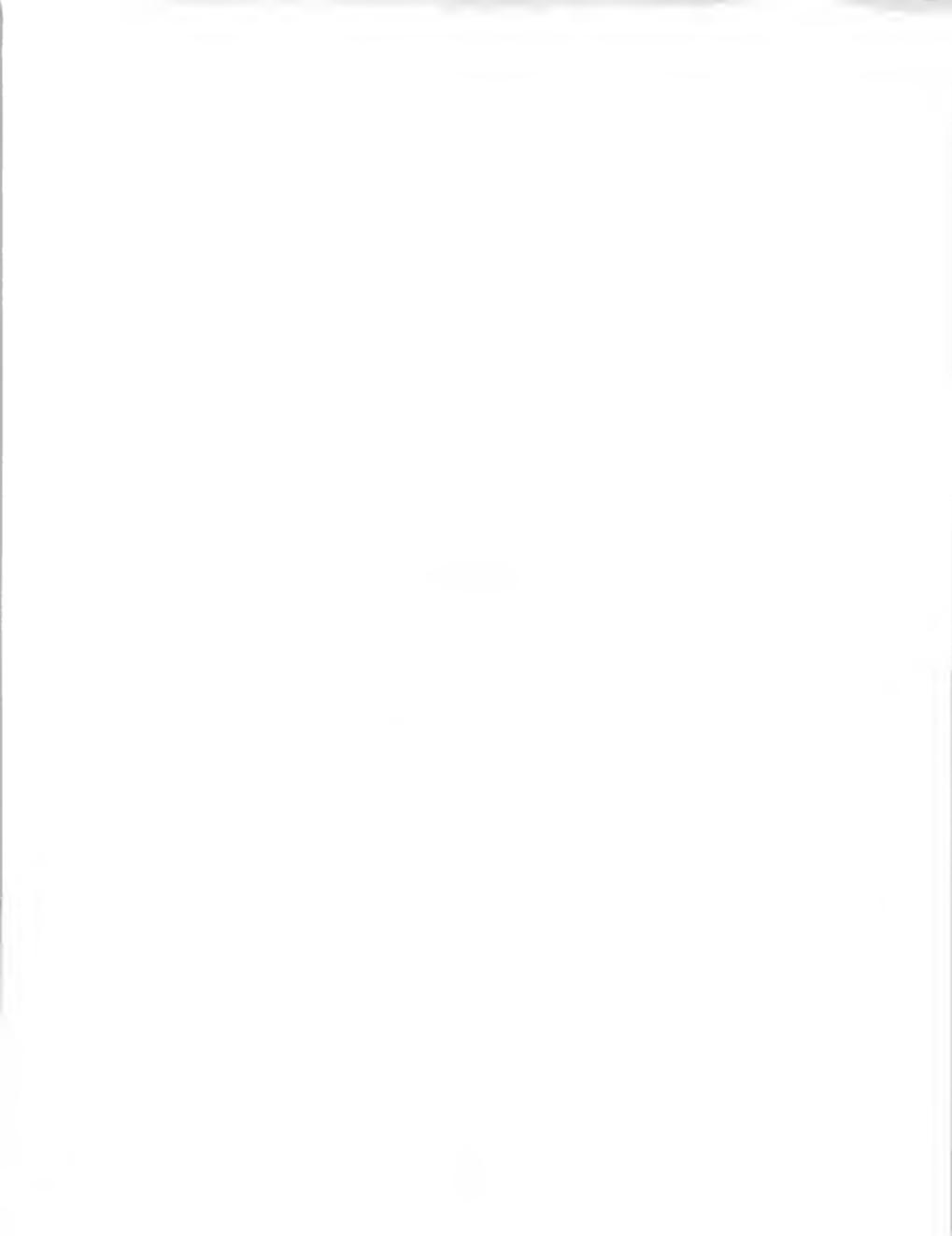
END-USER IMPACT

- **More Applications Development**
 - **Distributed Systems Development (DSD)**
- **PCs and Workstations with DBMS**
- **Visual and Voice Communications Add-Ons**



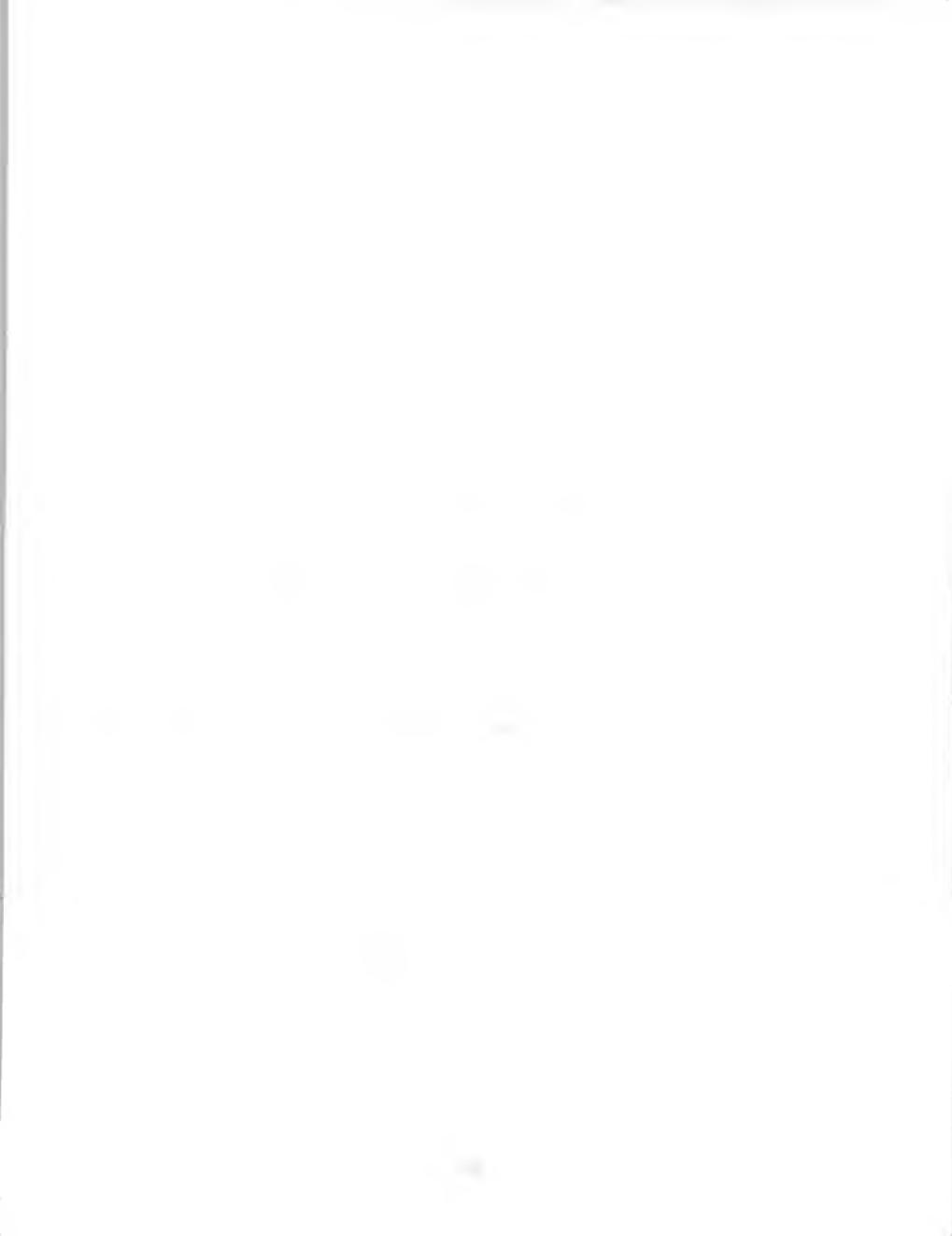
ADVANCED OFFICE SYSTEMS

	Now	Planned
Micro-Mainframe	67%	92%
Local Area Networks	31%	62%
Decision Support Systems	54%	62%



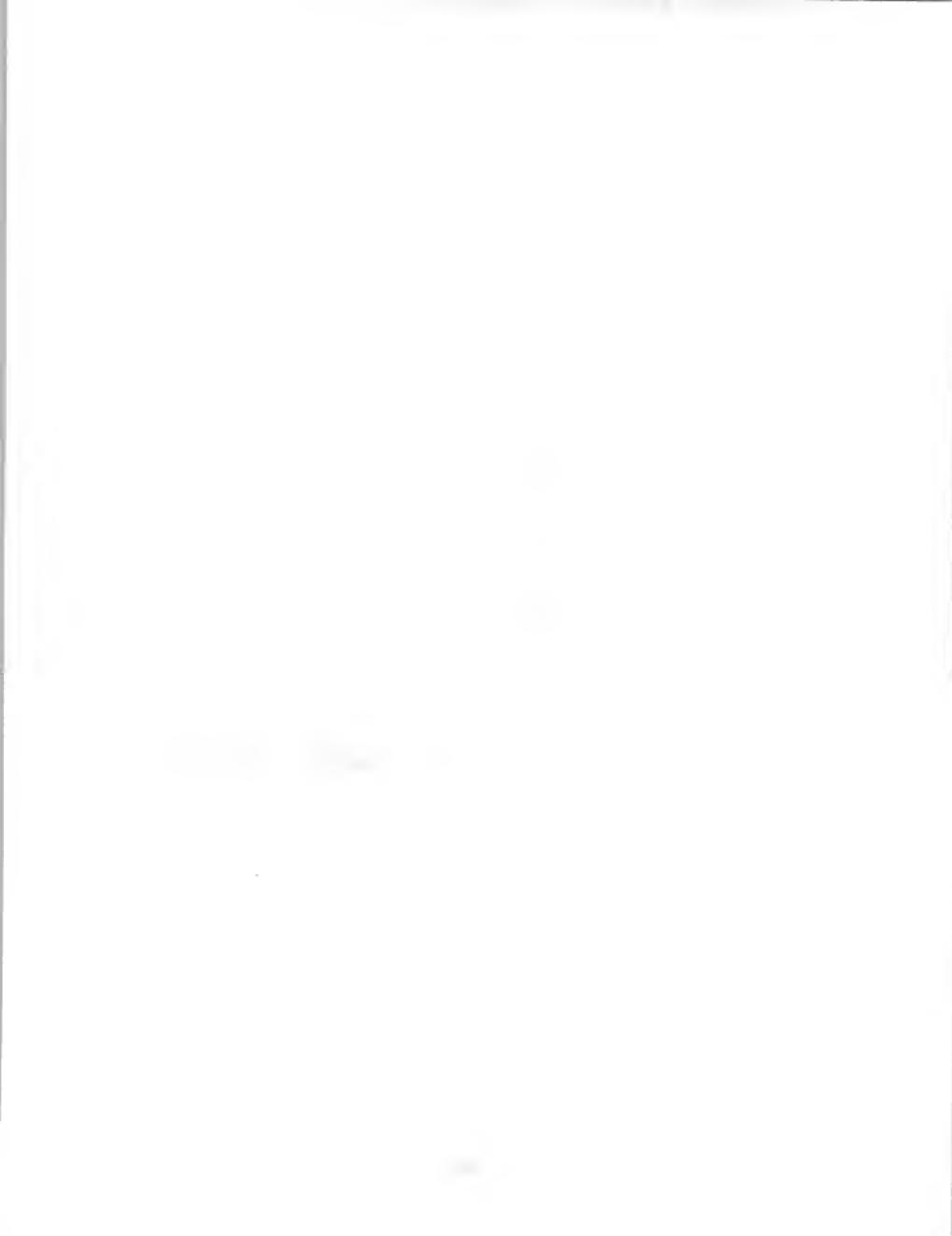
TEXT-ORIENTED DBMS

- Some Very Old
 - Stairs - Basis
- Mainframe Oriented
- New Growth from Micro Level
 - Informix - Airs
- Many Custom Systems
 - Dow Jones - Dialog
 - Mead



DOCUMENT-ORIENTED DBMS

- **Information Management**
- **Replace Paper Files**
- **Integrate with Electronic Distribution (EDI)**
- **New Products Emerging**
 - Day Flo - 4-1-1
 - ZyIndex



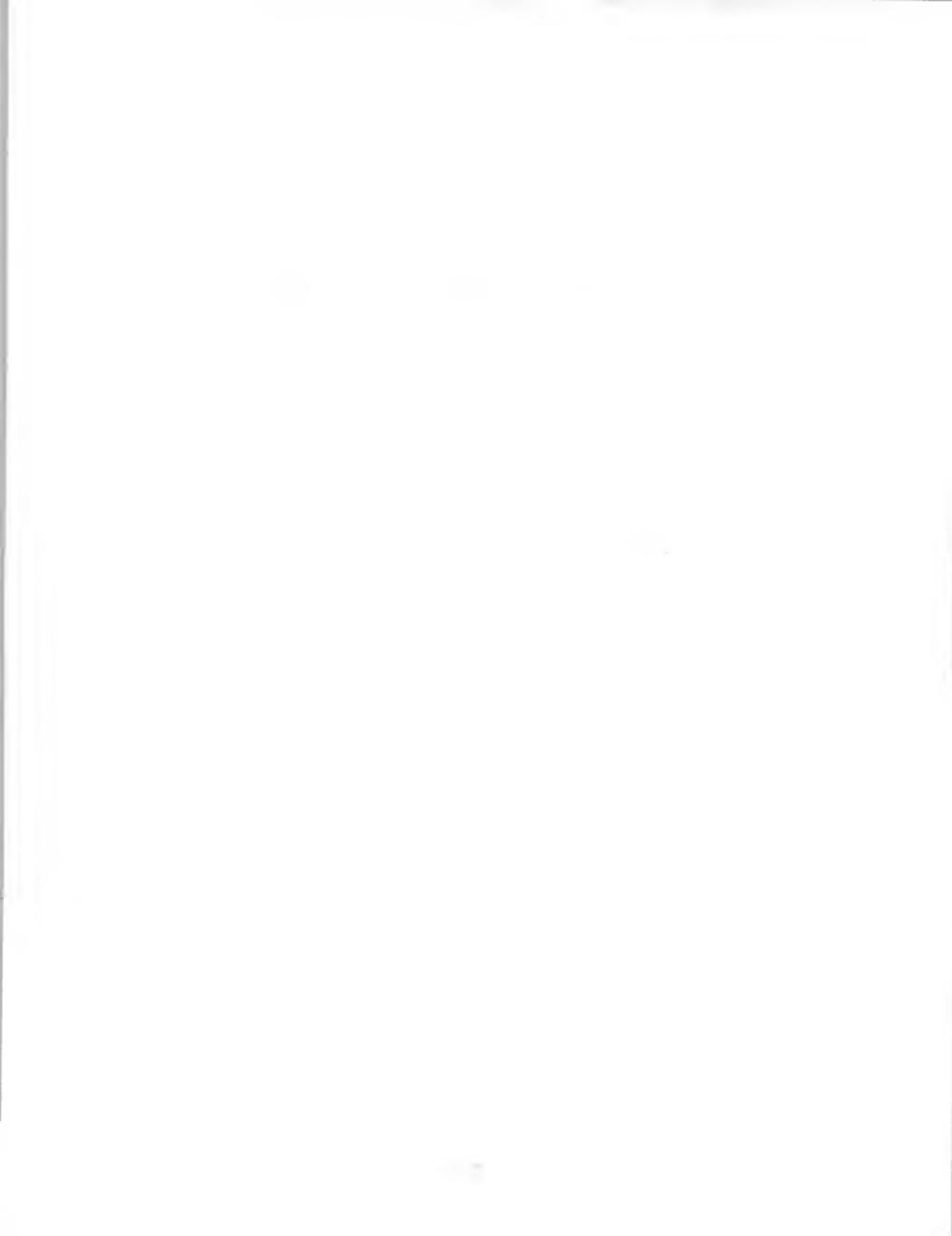
MULTI-USER MICRO DBMS

- **Lan-Based DBMS**
- **Issues Like Mainframe**
 - **Data Collision Avoidance**
 - **Recovery**
- **IBM “Standards”**
 - **PC-DOS 3.1**
 - **NETBIOS**



MICRO VS. MAINFRAME DBMS

Mainframe	Micro
<ul style="list-style-type: none">● Programmers● Separate DBMS and Language● Separate Training● Batch	<ul style="list-style-type: none">● End Users● Self Contained● CAI● On-Line



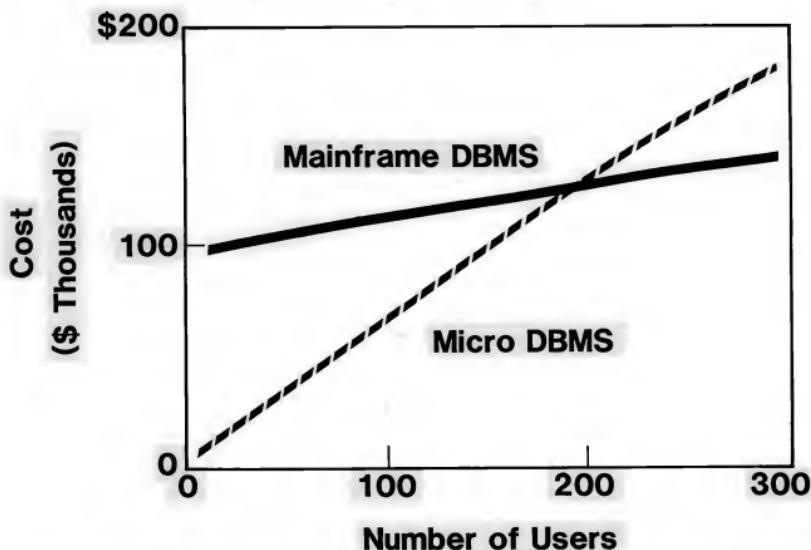
MICRO VS. MAINFRAME DBMS

Mainframe	Micro
<ul style="list-style-type: none">• Limited Functions• Multi User• Security Strong• High Cost/Unit• 15 Vendors	<ul style="list-style-type: none">• Extended Functions• Single User• Weak Security• Low Cost/Unit• 150 Vendors

13
14

15

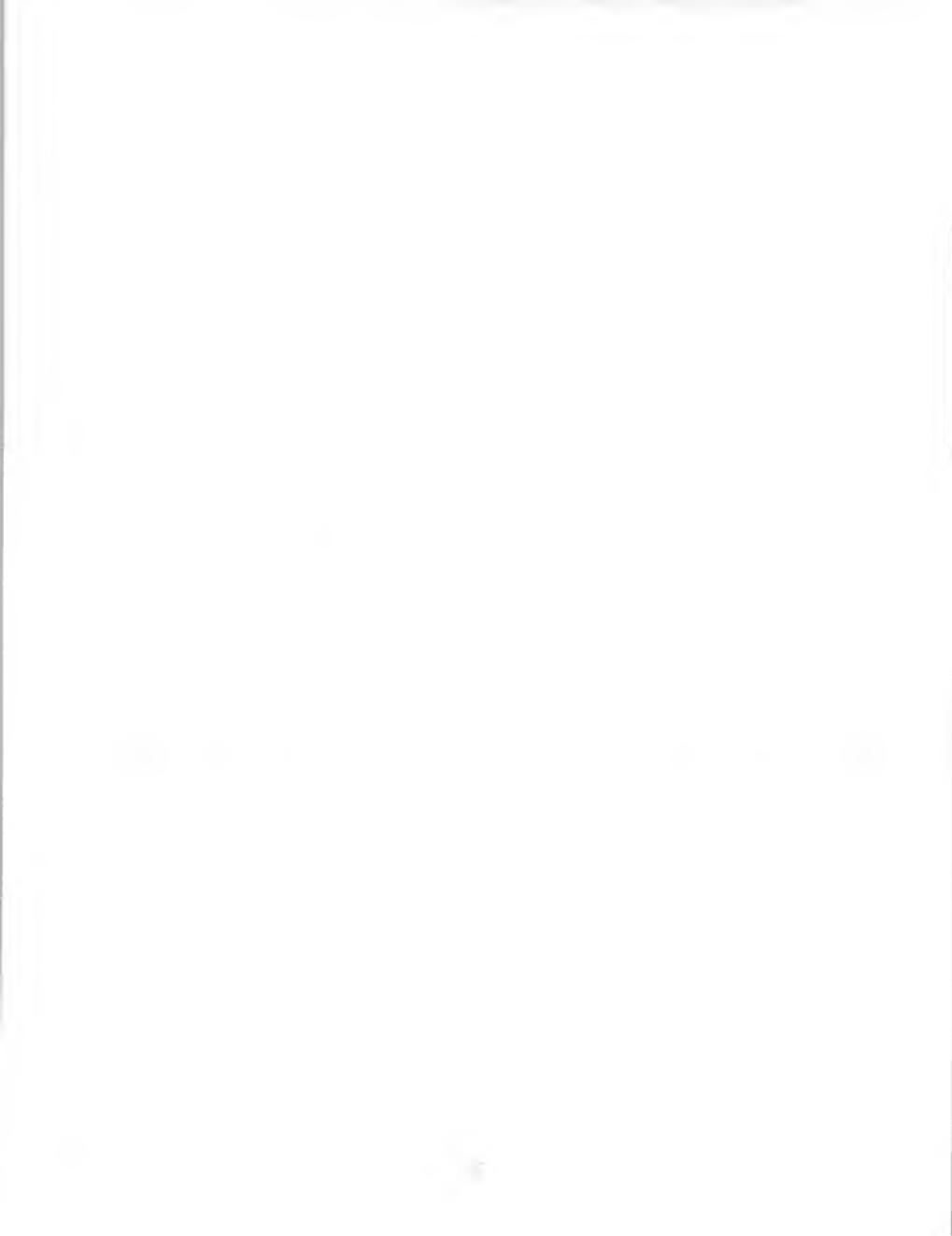
DBMS COST





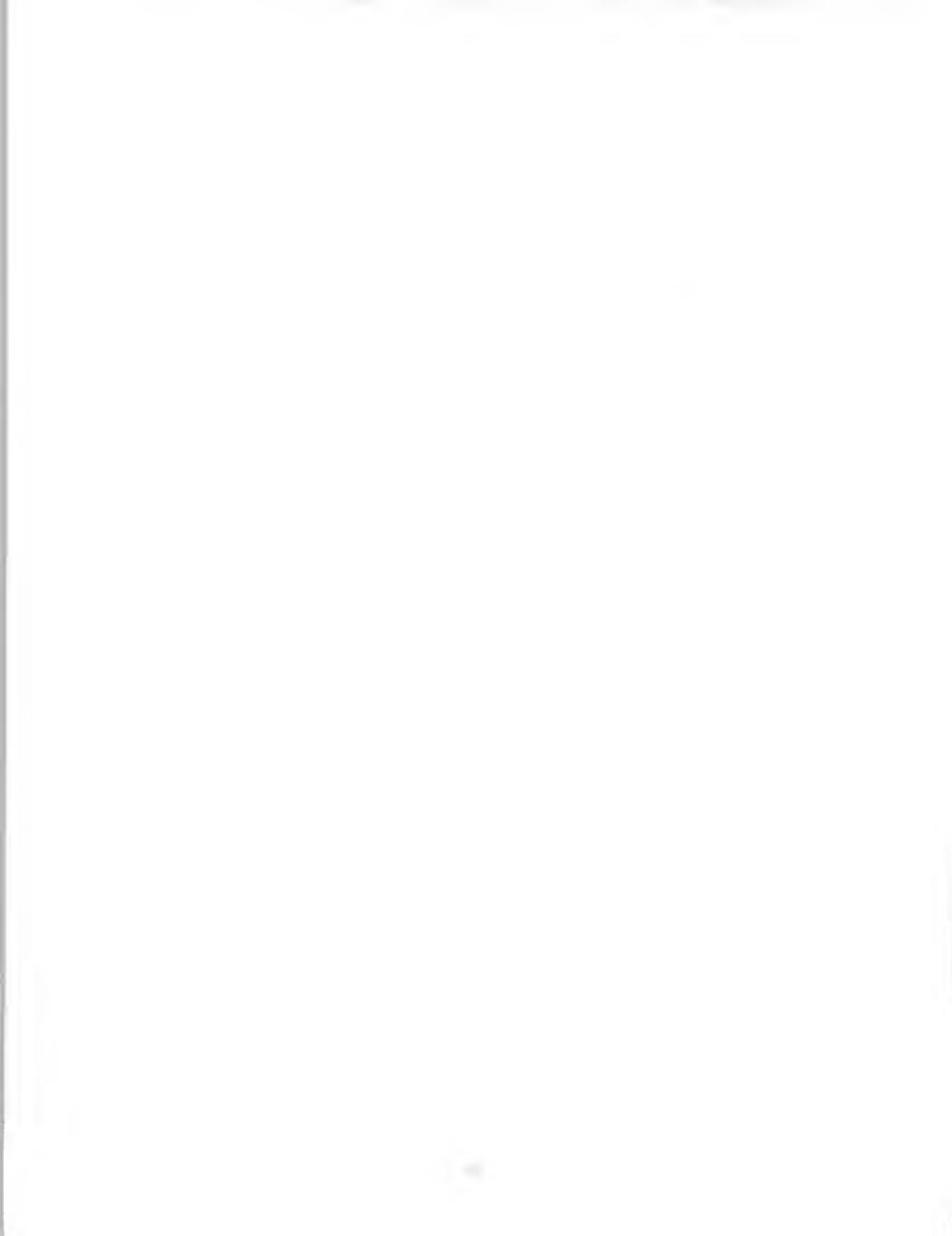
MINICOMPUTER DBMS

- Under Penetrated
 - Except HP
- Have Not Supported Mainframe DBMS
- Caught in the Middle
- Vendors Attacking Now



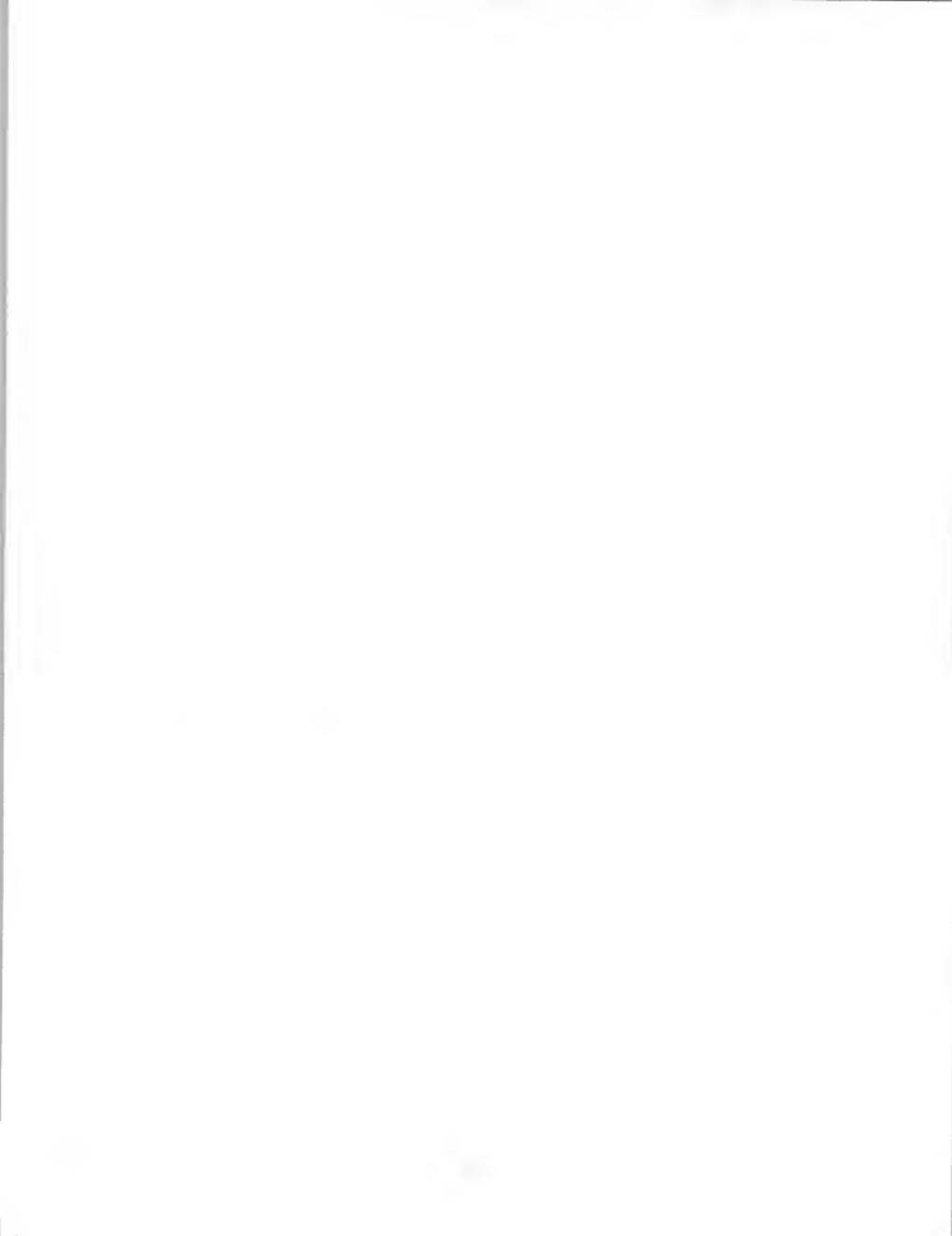
DISTRIBUTED DATA BASES (DDB)

- Access "Blind" to Data Location
- Front-End Processor Keeps Control
- Rudimentary Systems As Yet
 - RTI INGRES
 - IBM R*
 - CCA
- Often Based on SNA/VTAM
- Performance and Restructuring Problems



ARTIFICIAL INTELLIGENCE + DBMS

- **Power + Ease-of-Use**
- **ANSA**
 - **Paradox**
 - **Relational DBMS**
 - **QBE-Like Inquiry**
 - **Lotus-Line User Interface**

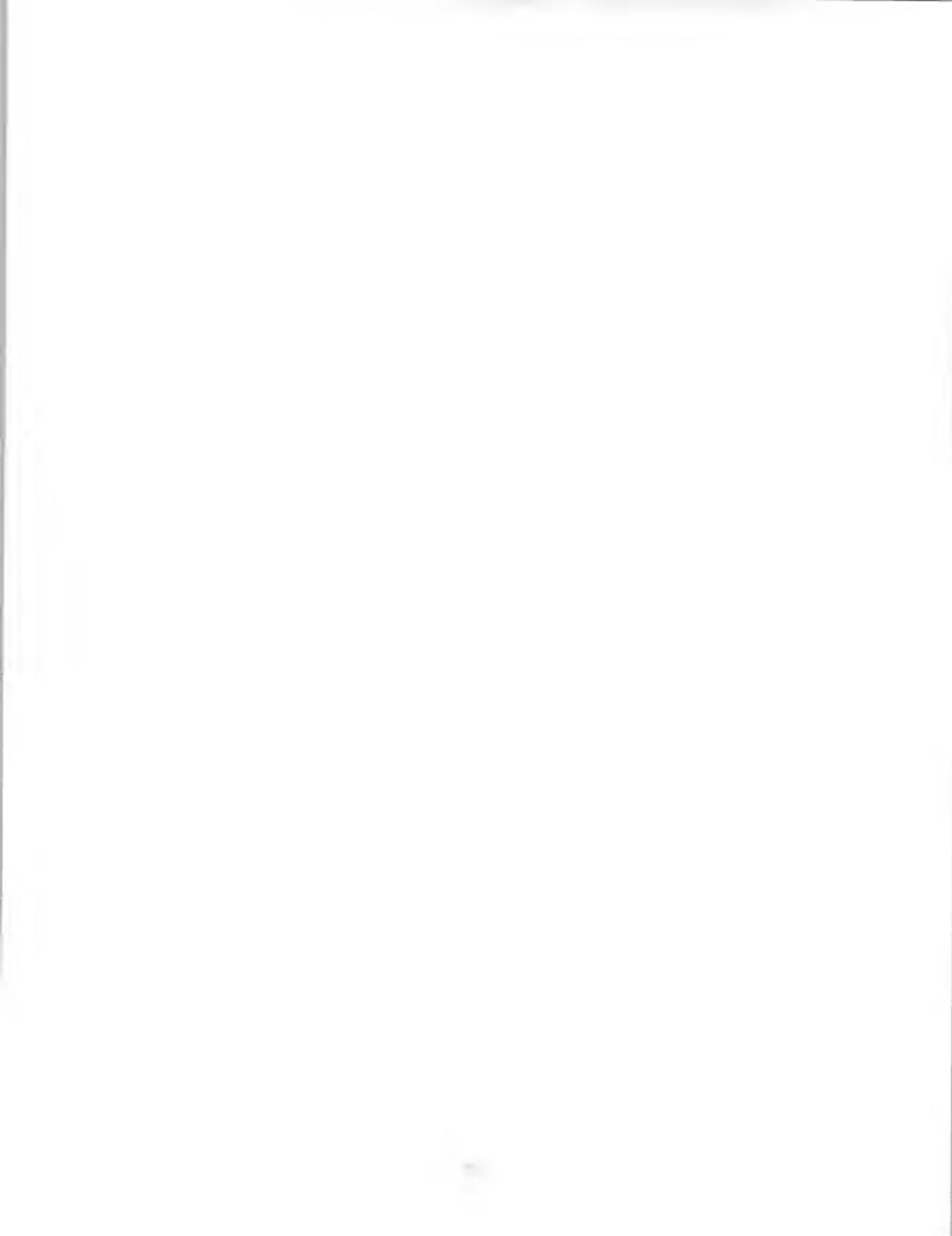


ARTIFICIAL INTELLIGENCE

+

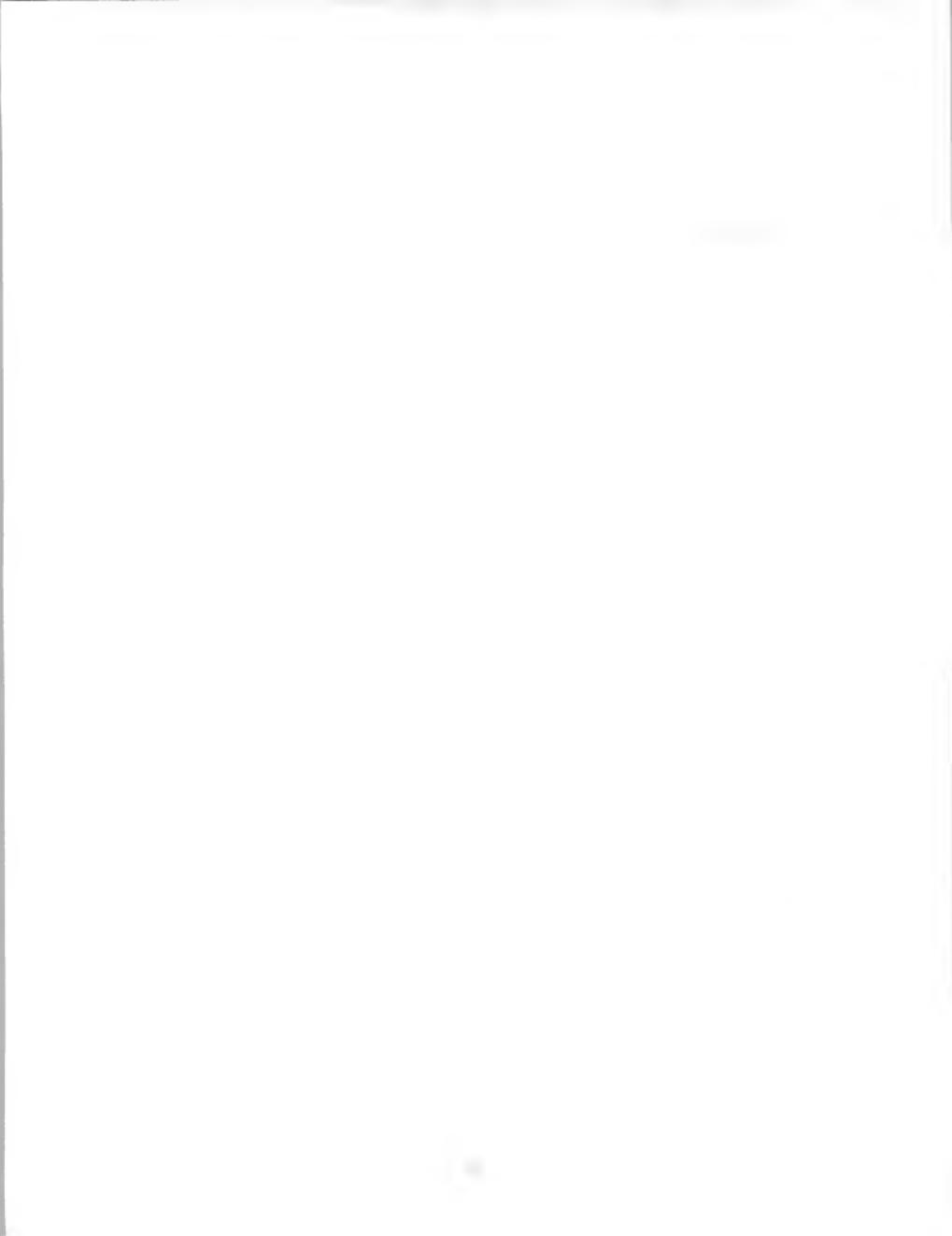
DBMS

- Semantec**
 - Q & A**
 - Word Processor**
 - Data Base System**
 - QBE Function Like Pfs:File**



RELATIONAL DATA BASE SYSTEMS (RDBS)

- **Objectives**
 - **End User Access**
 - **Software Development Productivity**



ADVANTAGES

- **Flexibility**
- **Ease of Use**
- **Communicability**

DISADVANTAGES

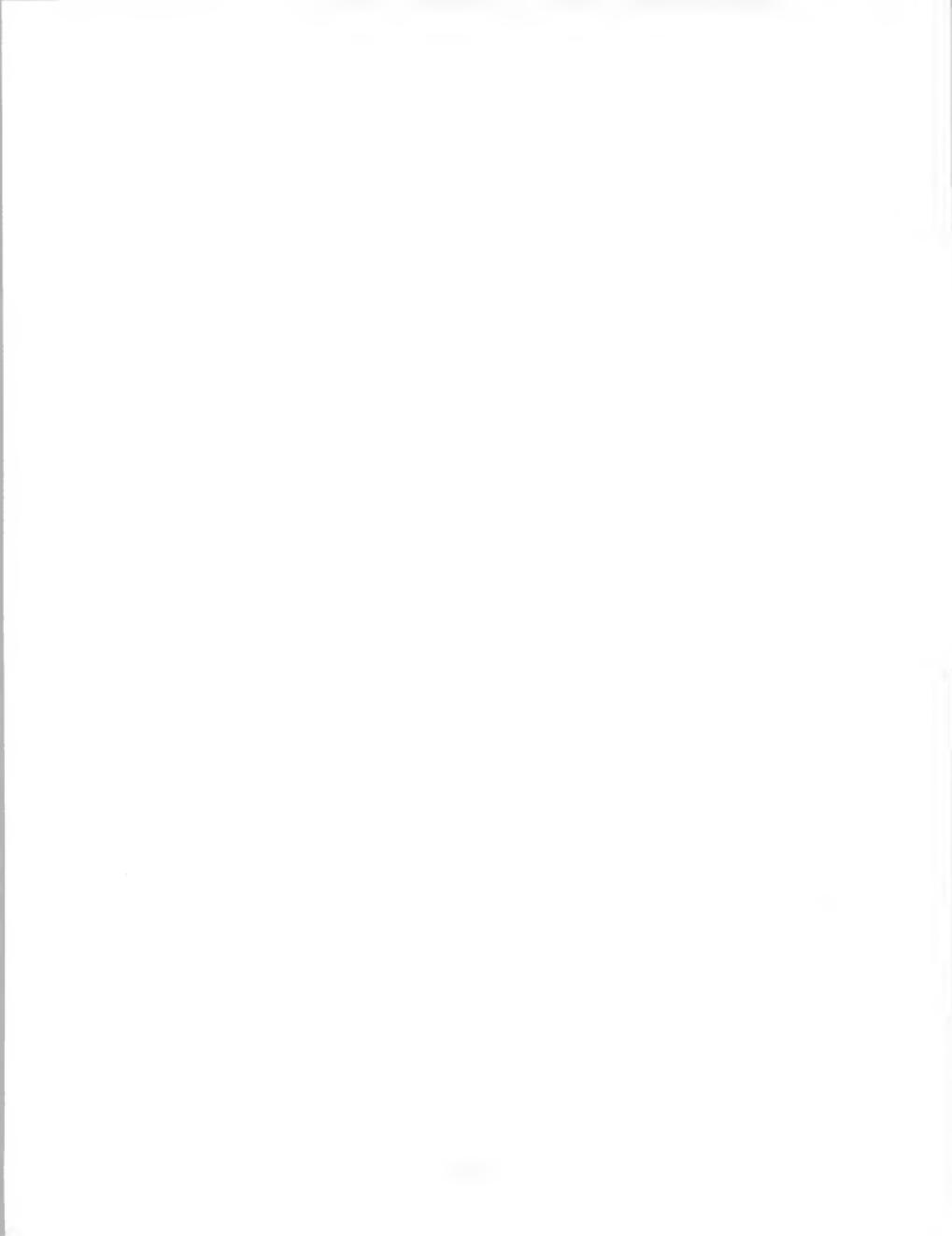
- **Performance**



RELATIONAL DBMS

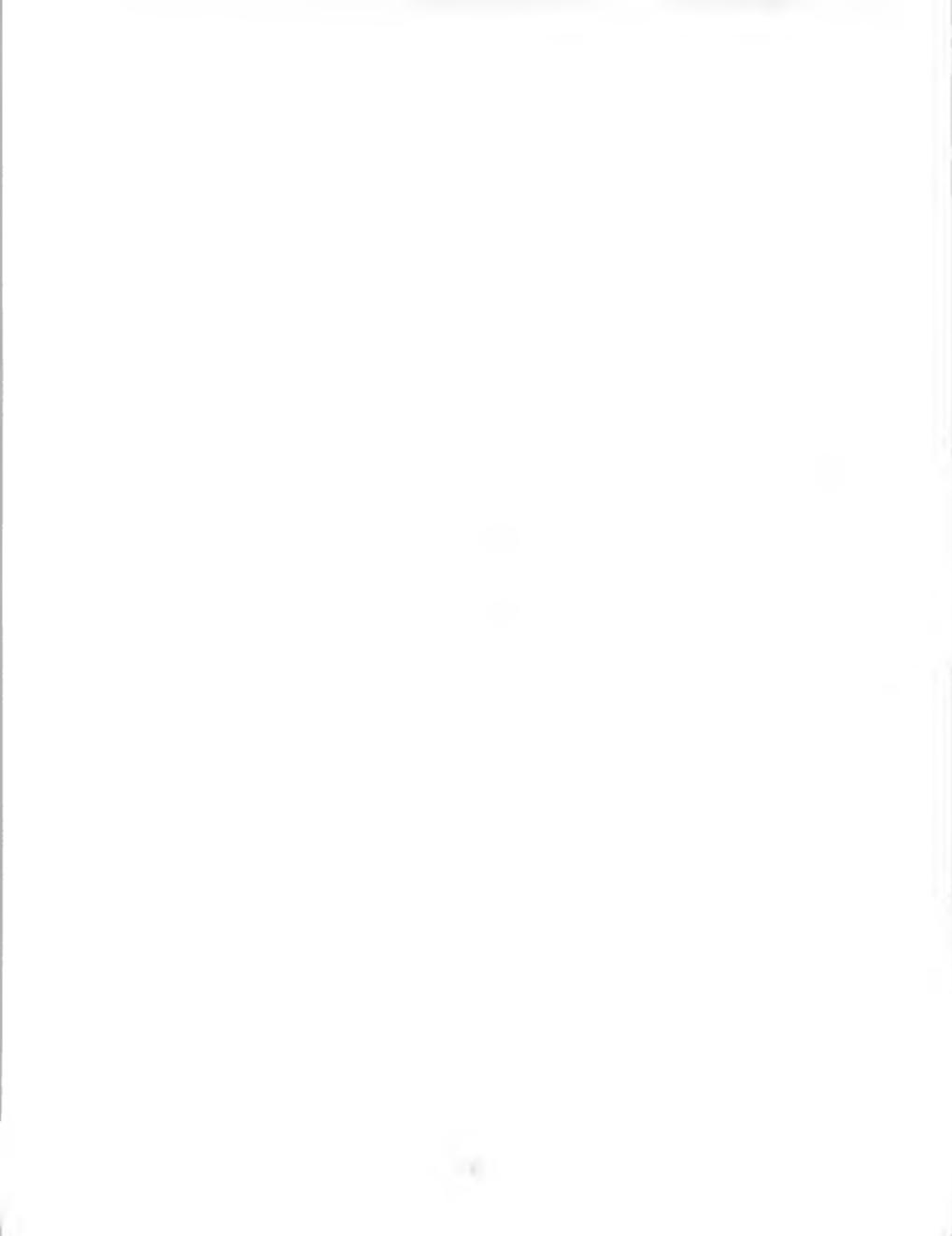
? Do They Actually Exist?

? Does It Matter?



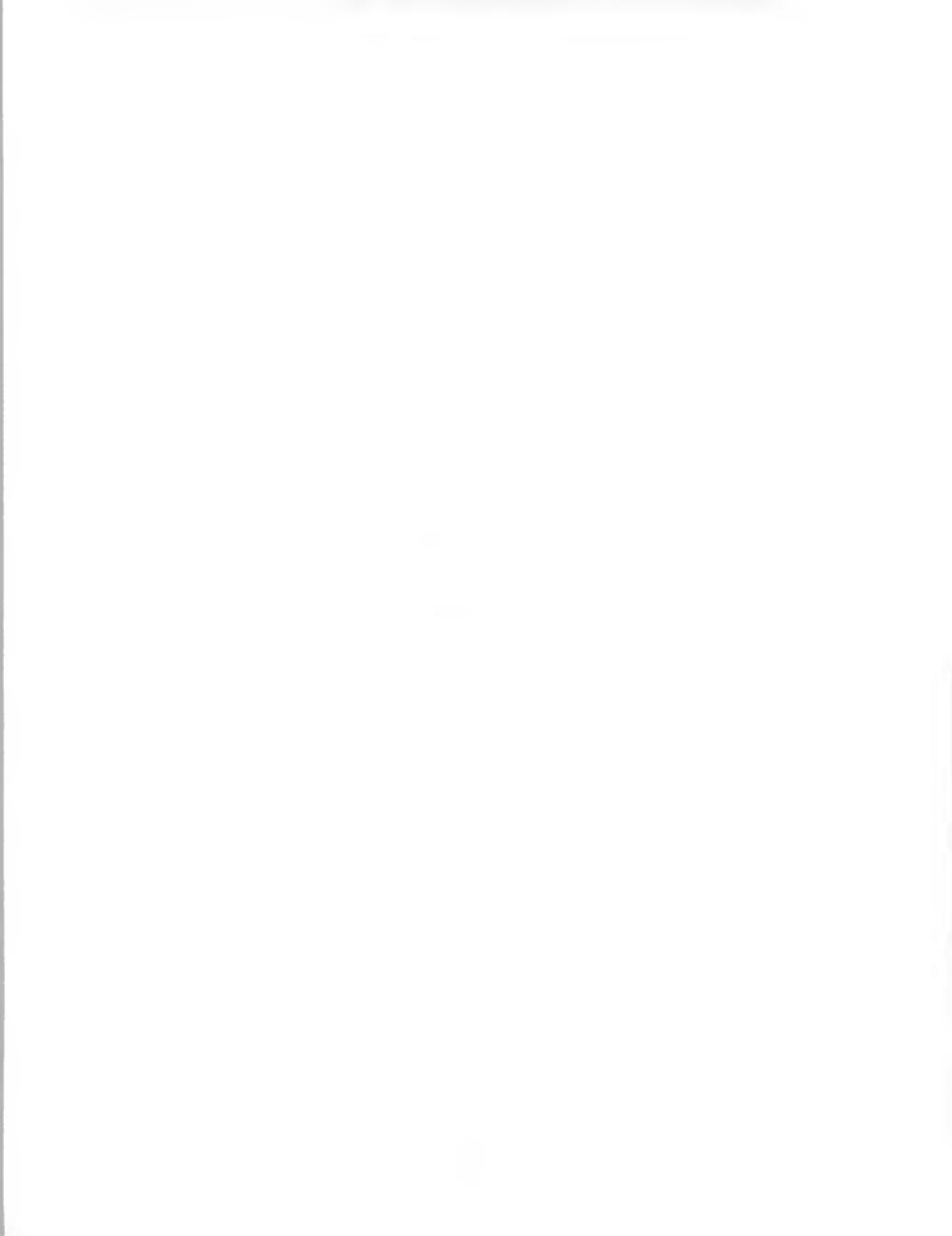
DATA BASE MACHINES (DBM)

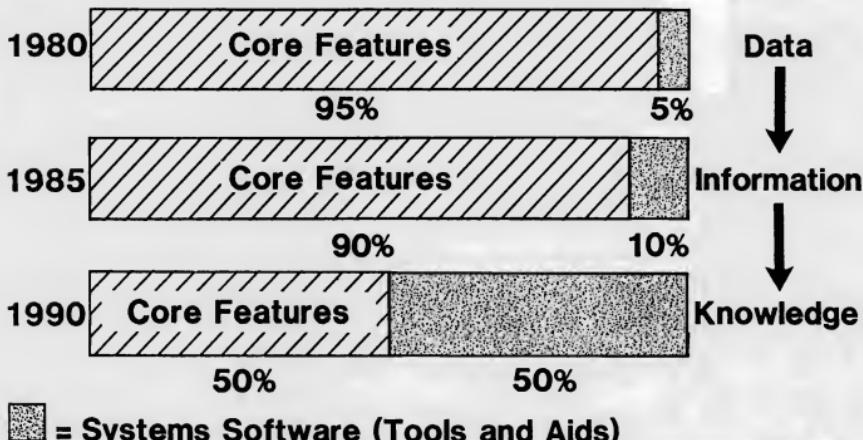
- Off-Load Host
- Improve Performance
- Allow Multi-System Access



DATA BASE MACHINE

- Existing
 - Britton-Lee
 - Teradata
- Potential
 - IBM
 - DEC



APPLICATION SOFTWARE COMPONENT EVOLUTION

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Maximum is Based on Current Software Product Values.



DBMS/APPLICATIONS

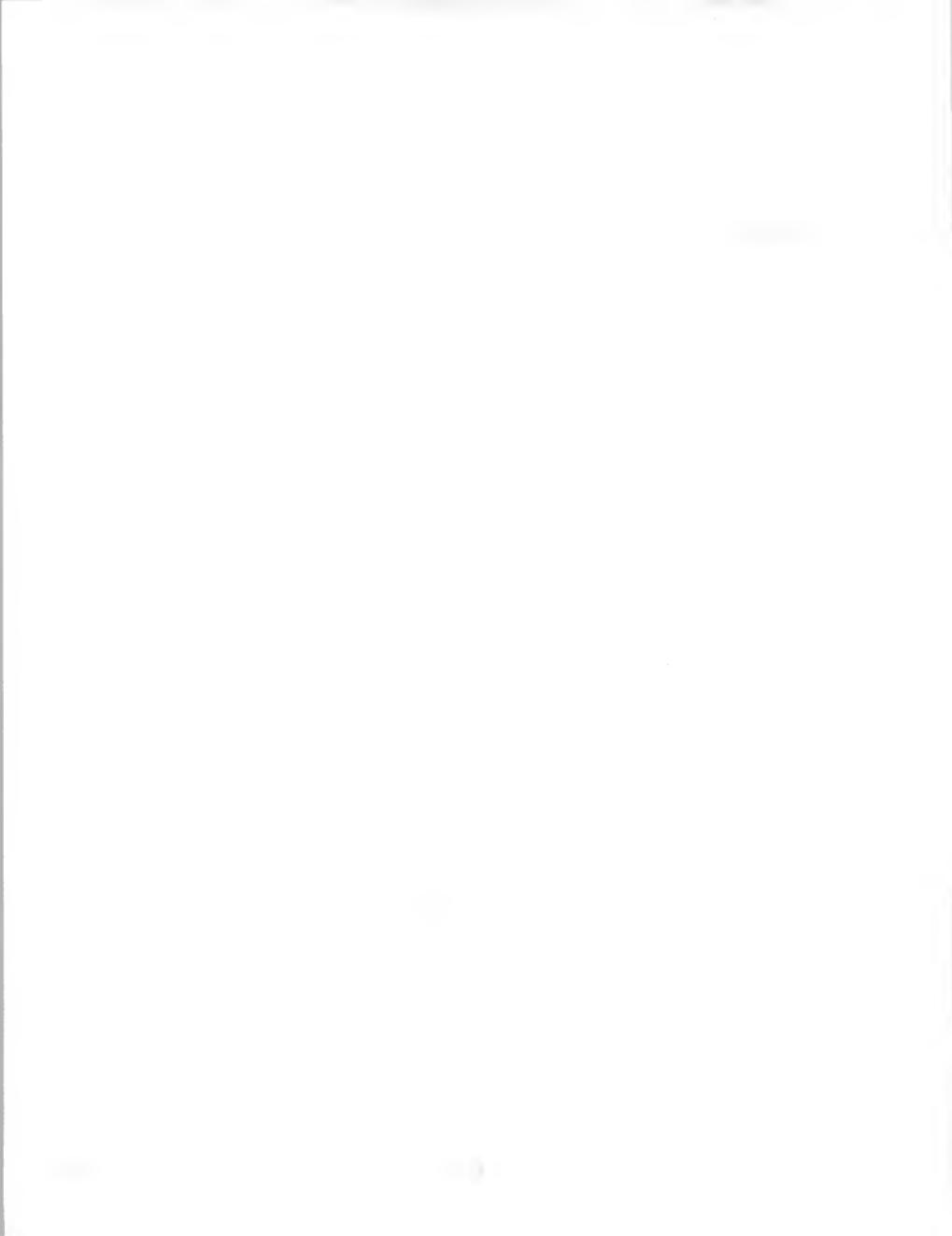
High-Level Satisfaction

- Average 3.7

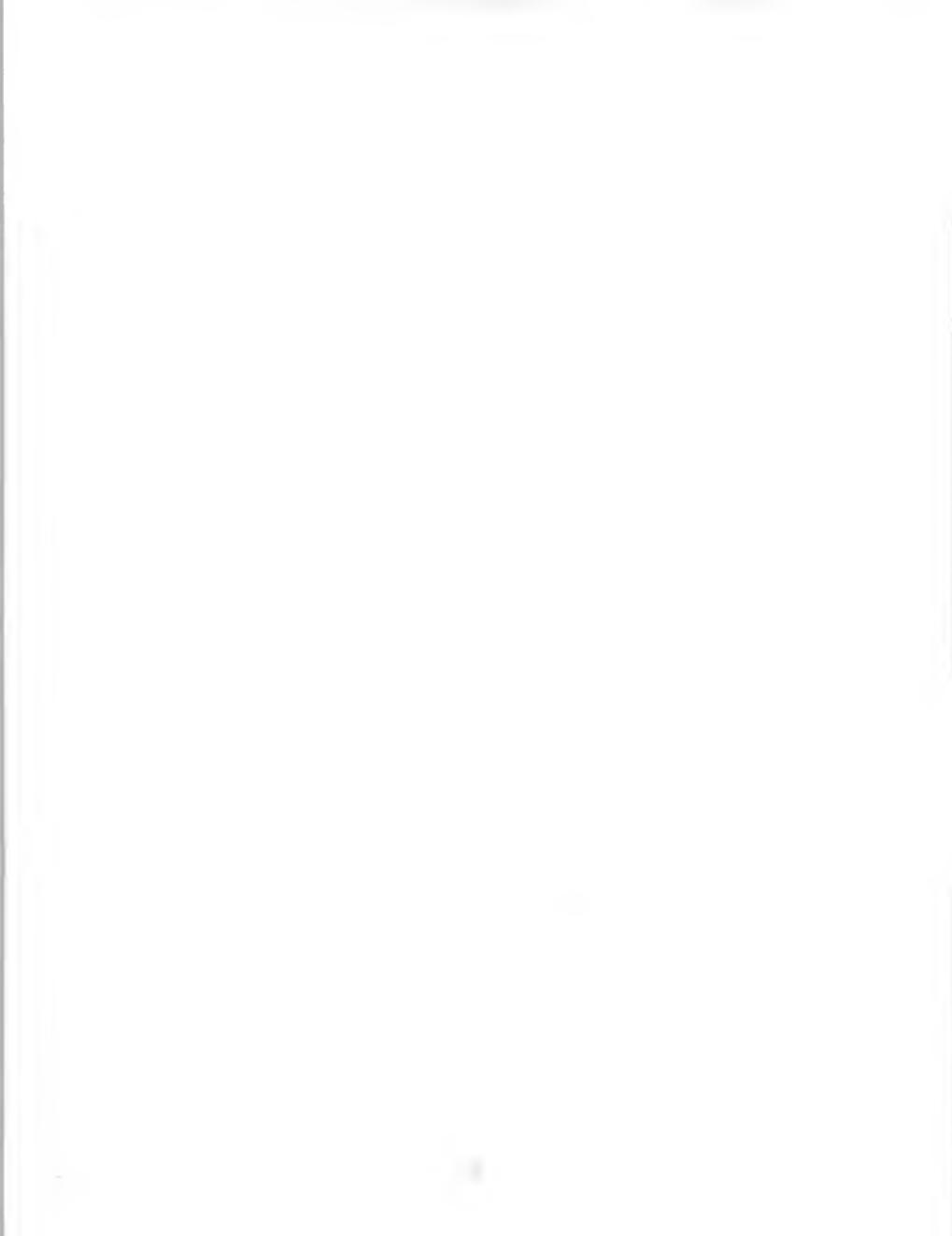
- Preferred Approach**
 - Add Applications to DBMS**
- High Intent to Purchase**
 - 46% by 1987**

DBMS/APPLICATIONS

- **Preference:**
 - Applications Vendor 4.0
 - DBMS Vendor 3.5
 - Hardware Vendor 2.8
 - Third Party 2.6

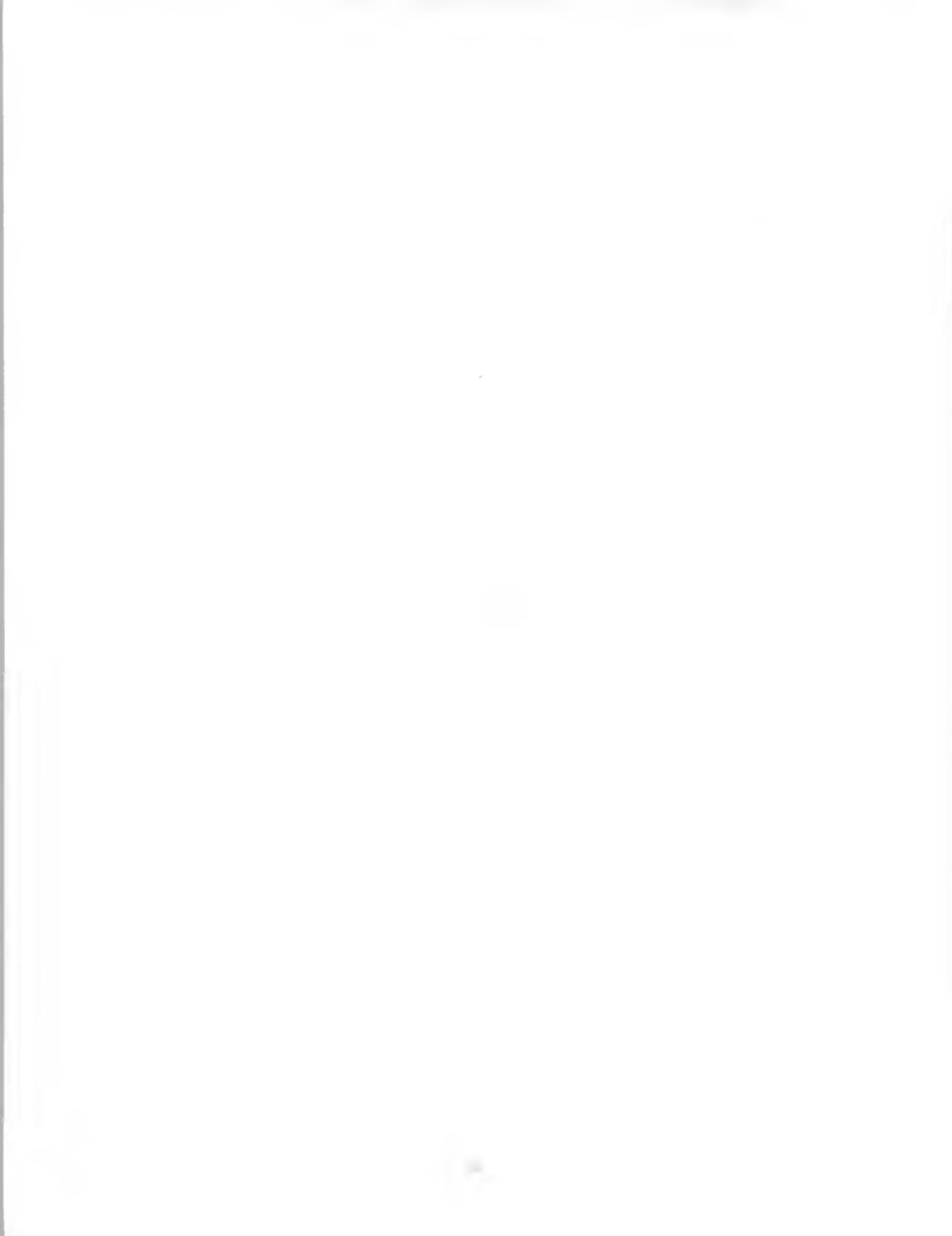


VENDOR ROLES



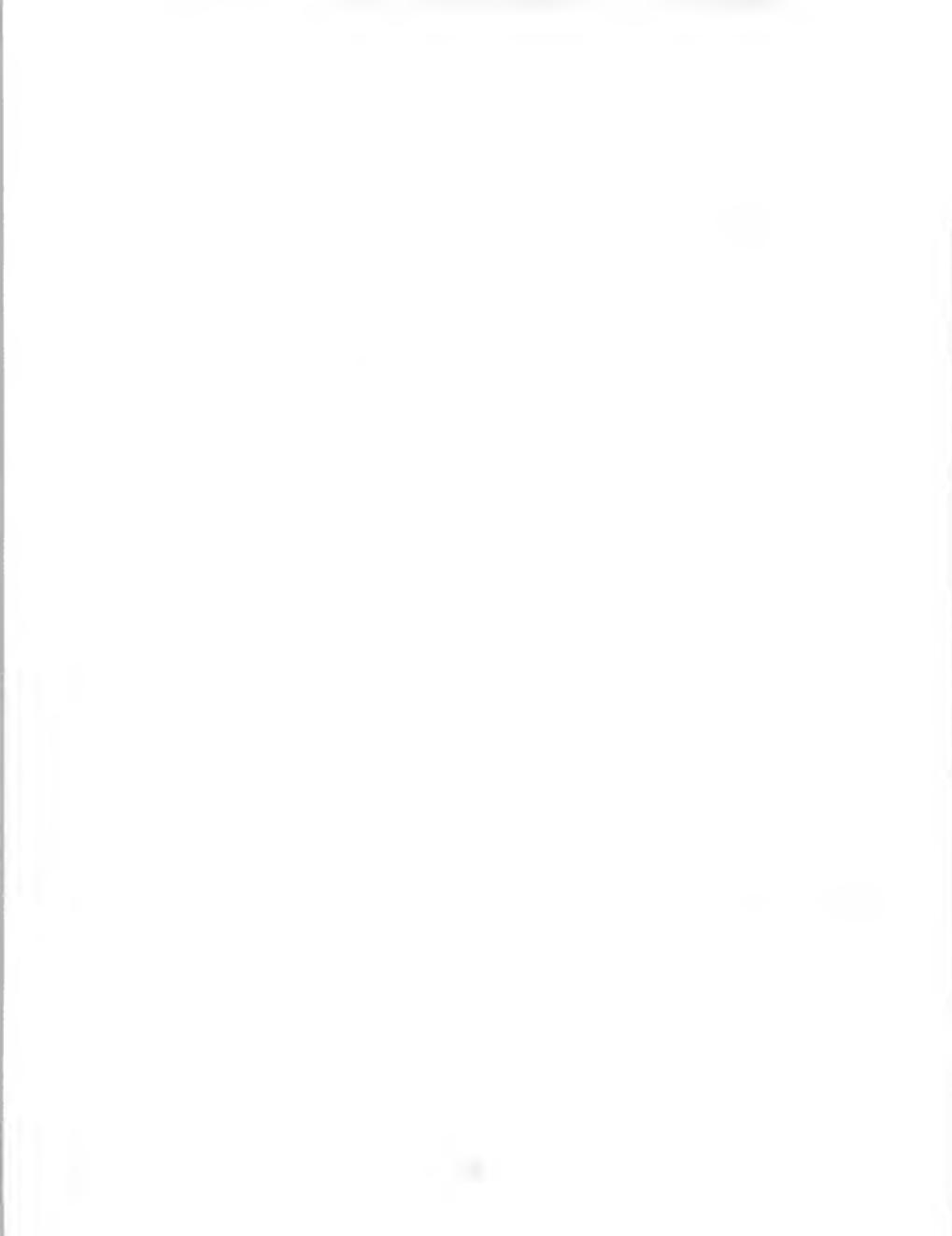
IBM DBMS DUALITY

- **IMS, DL1**
 - Hierarchical
 - Production
 - Performance
 - Availability



IBM DBMS DUALITY

- **DB2, SQL/DS**
 - End User
 - Ease-of-Use
 - Flexibility



IBM COVERAGE

Data	Voice
Text	Image



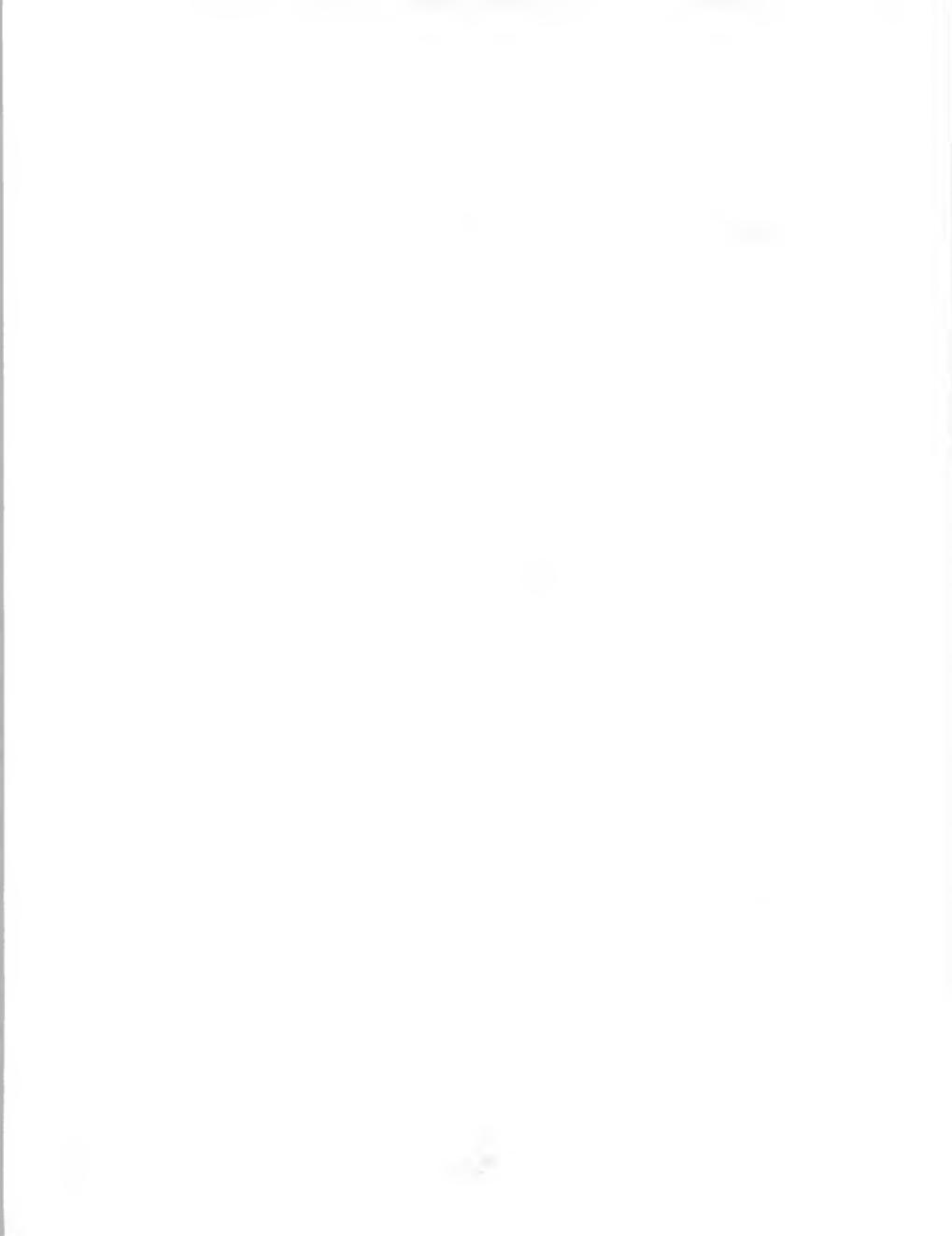
DISOSS



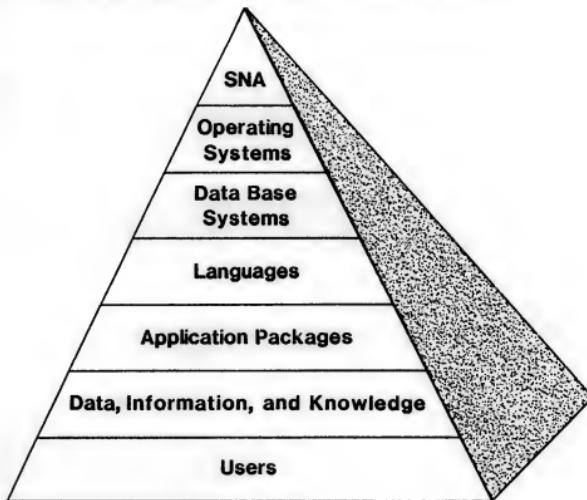
IMS/DB2

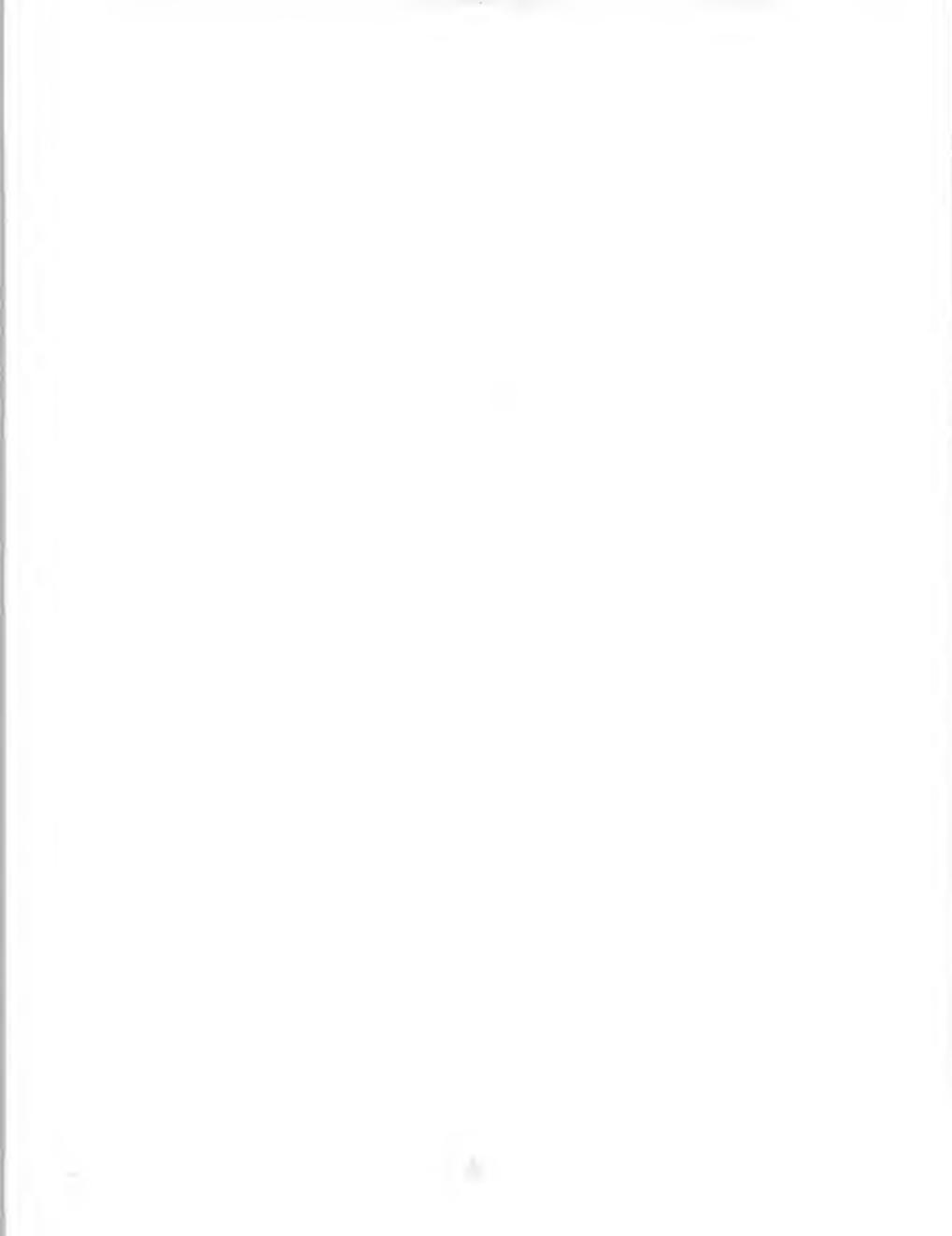
IBM TRENDS

- **Move Functions to DBMS**
- **Withhold Source Code**
- **Use DBMS to Sell Hardware**



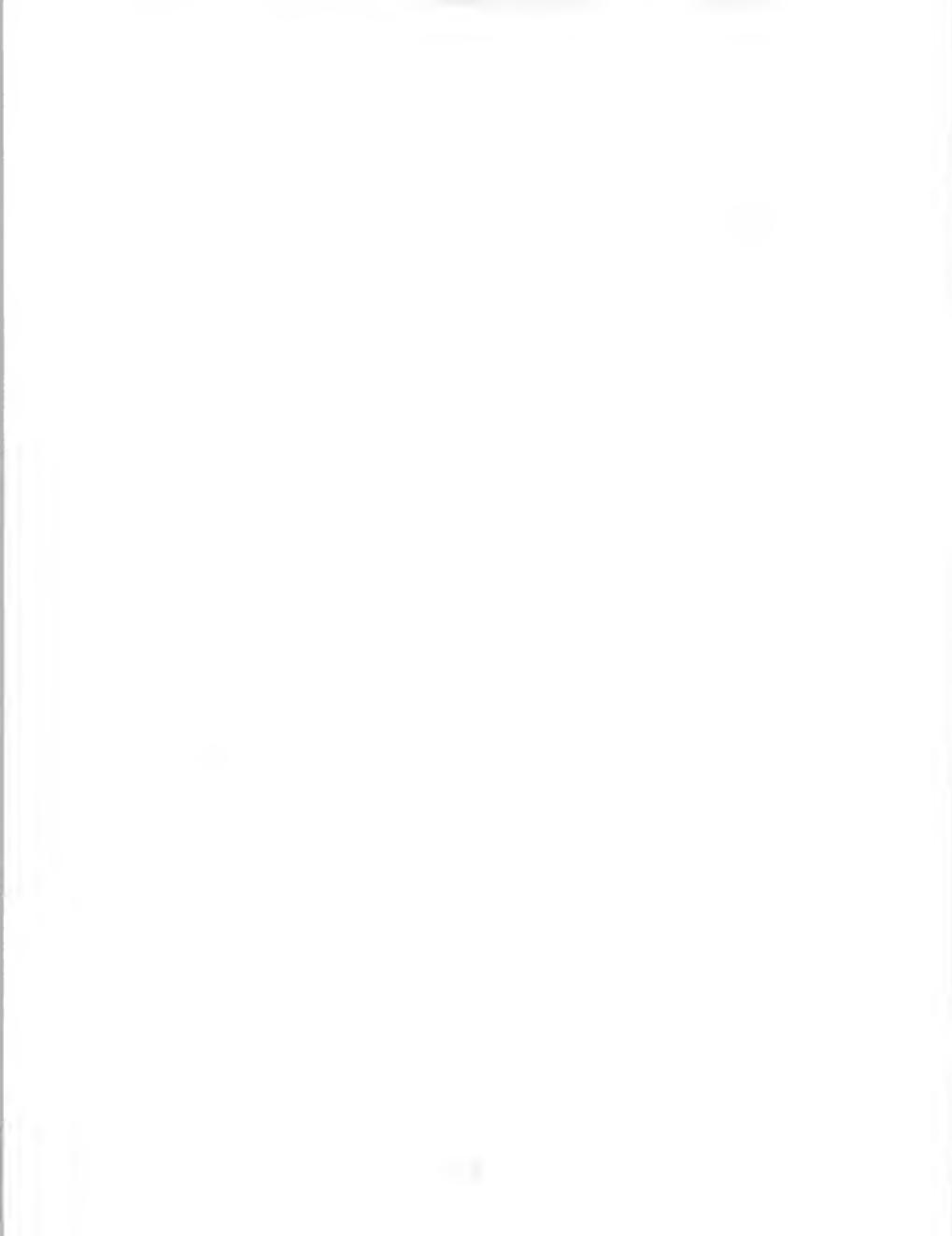
SNA IS THE CAPSTONE OF IBM'S SOFTWARE STRATEGY



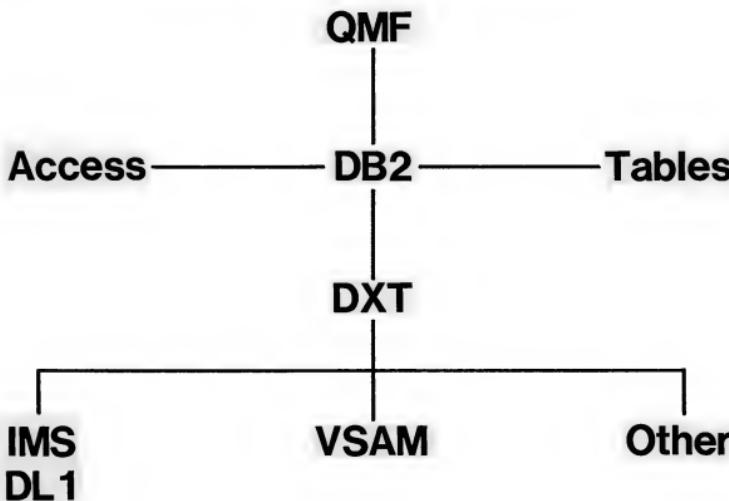


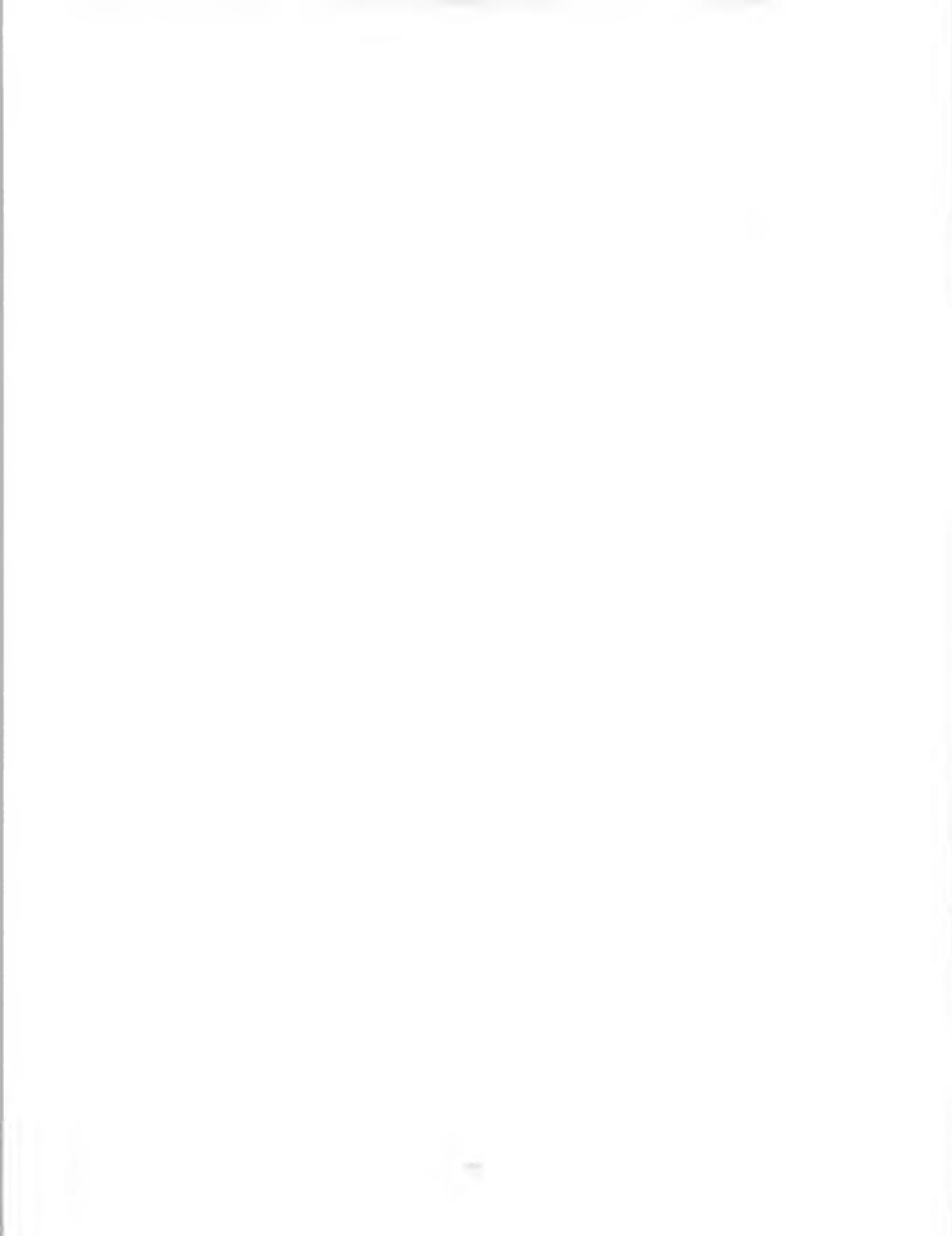
DB2

- **Batch/Interactive Integration**
- **Integrates Workstations**
- **Joins Relational and Hierarchical Data**
- **Performance Bound**



IBM DBMS STRUCTURE





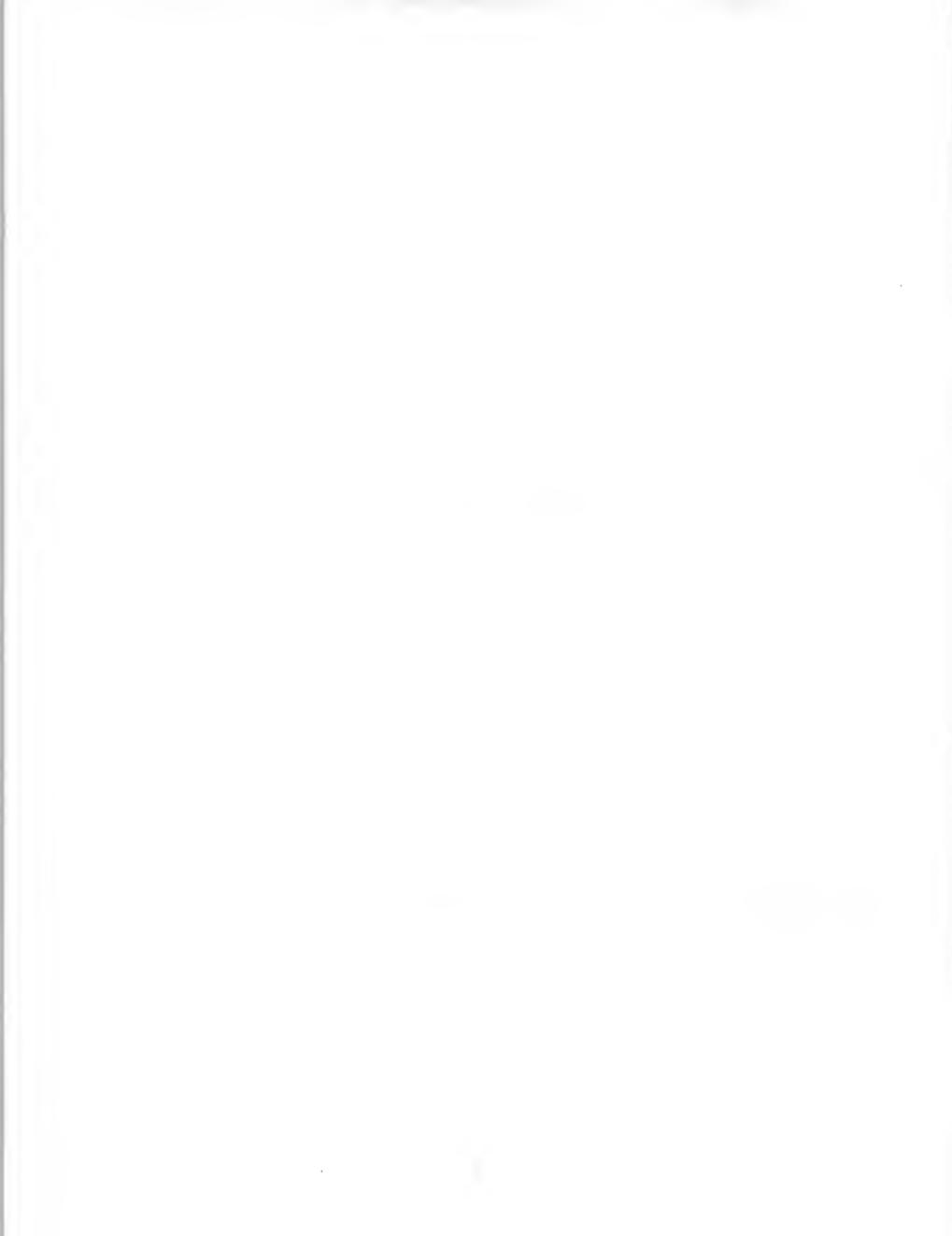
CULLINET DBMS STRATEGY





CULLINET DBMS PRODUCTS

- **12 Products Related to IDMS/R**
- **Some Alternates**
- **Expensive and Complex Process**



INPUT®

CONCLUSION



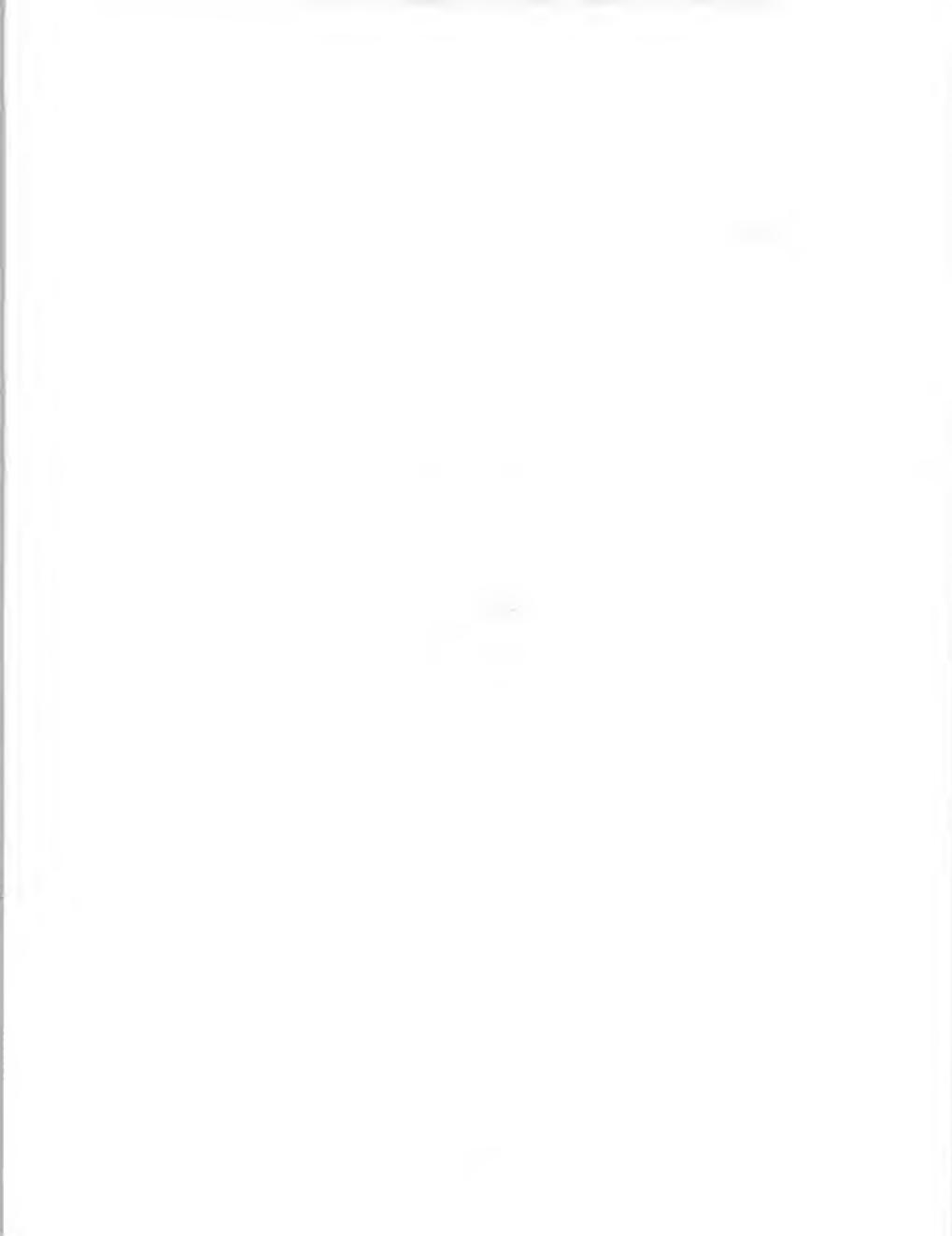
DBMS - IBMS

- **Integration**
 - Text - Graphics
 - Data - Voice
- **Add Expert Systems**



NEXT GENERATION OF DBMS

- **Distributed/Networked**
- **Interconnected**
- **Relational +**
- **Information Oriented**
- **Hardware Assisted**



IF

**Information (Data) Is
Corporate Resource**

THEN

**It Requires
Corporate Attention**

